

Public Utilities



Volume 68 No. 12

December 7, 1961

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THE STATUS OF POWER SUPPLY IN MAINE

By Lincoln Smith

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Where Is the Money Coming from?

By Fergus J. McDiarmid

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Is Regulation Keeping Up with the Times?

By Lloyd G. Hammel

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Railroads in New England



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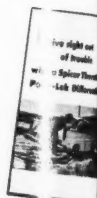


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Public Utilities

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VOLUME 68

DECEMBER 7, 1961

NUMBER 12



ARTICLES

The Status of Power Supply in Maine

Lincoln Smith 873

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Where Is the Money Coming from?

Fergus J. McDiarmid 883

The author explains the future sources of public utility financing and the important part they will play.

Is Regulation Keeping Up with the Times?

Lloyd G. Hammel 893

An evaluation of the effectiveness of modern-day utility regulation.

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2. Increased availability. A true once-through unit, the boiler's inherent simplicity is resulting in 95% boiler availabilities.

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Illustrate about the B&W Universal Pressure boiler.

3. Increased economy. Ability to maintain steam temperatures over the entire operating range improves the plant's overall efficiency.

4. Lower maintenance costs. After trip-out, the boiler can be entered in 2½ to 3 hours. Fast cold starts and hot restarts can be made without thermal shock.

After careful evaluation of operating results of Universal Pressure boiler systems, we strongly recommend its use for all electric utility applications involving turbine throttle pressures 2000 psi and up. We firmly believe that a review of the UP boiler system for your specific conditions will show it as the

boiler to specify for high-temperature, high-pressure service.

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Pages with the Editors

"CONSUMERS are very fine people and deserve every consideration." With this disarming generality, one of the authors whose article in this issue appears on page 883 proceeds to take a rather critical view of what is fast becoming the cult of the consumer. The author is FERGUS J. MCDIARMID, vice president of The Lincoln National Life Insurance Company, Fort Wayne, Indiana, whose discussion about the problem of financing utility expansion is in substance a restatement in article form of his recent address before the Indiana Electric Association meeting at French Lick, on October 5th.

PROBABLY the reason why we are all so sympathetic with the consumer interest is because it is so universal. We are all consumers. That goes for the great rank and file of our citizenry, as well as specialized segments such as corporate management, regulatory authorities, and other government officials. There is no escaping our rôle as a consumer in modern society. We get this credential the day we are born. It is something like the modern status of the universal man, which the hero of a current musical comedy hit on Broadway sums up:

"I have a lifetime membership in the human race,



LINCOLN SMITH



LLOYD G. HAMMEL

"Entitled to all the benefits of the brotherhood of man."

BUT is there a danger that excessive if not aggressive preoccupation with the interest of the consumer may result in actual damage to the consumer, as such? Our author recalls the parable of the ant and cricket. The cricket was very consumer-minded, at least all summer long; but when the going got tough and the snow began to fly, the cricket came out on the short end. The same thing happened to overmature civilizations of Rome and other self-indulgent cultures to which our contributor refers. The true interest of the consumer may lie just as much in looking out for the stability and security of his service, as in concentrating on present and possibly transient benefits, if the long-range factors are ignored.

It is for this reason that we commend this thoughtful and challenging article, entitled "Where Is the Money Coming from?" To say that public utility service will always grow and prosper, simply because it has always done so in the past, is merely another way of saying we are all still alive and kicking. It ignores the ominous possibility that we only die once, and that there could be an end to many



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good things, if some forehanded provisions are not made for their continuation.

WE see a good example of this in the hectic scramble for merging the railroads and the airlines just to keep them going, even in a less affluent manner to which they have become unaccustomed. But will consolidations and mergers, with their accompaniment of operating economies, provide a lasting answer unless the more basic economic problems are confronted and dealt with realistically, if not solved satisfactorily?

MR. MCDIARMID has long been a contributor to these pages, although in recent years his welcomed efforts have become less frequent. A native of Canada and a graduate of the University of Toronto ('28), he started to work for The Lincoln National Life Insurance Company three days after receiving his degree and has continued his active interest in public utility investment as well as actuarial matters. His most recent volume, *"Investing for a Financial Institution,"* will be reviewed in our next issue.

* * * *

ANOTHER fairly regular contributor to our pages appears in this issue (page 873), DR. LINCOLN SMITH, associate professor of political science, New York University. A native of Maine and a graduate of Bowdoin College, DR. SMITH deals here with a recurrent problem of his native state, the status of power supply. For many years the Pine Tree state has had difficulty determining its position on handling its natural power resources. Early in the century, fearful that its unique hydro possibilities (among eastern states at least) might be siphoned off through exports of power, the Fernald Law was passed to keep Maine's power at home.

AND there it stayed for many years, unexploited and largely undeveloped. Following the repeal of the Fernald Law, the controversial and fascinating proposal to develop tidal power through the tremendous tides in the Bay of Fundy became a hardy perennial on the political



FERGUS J. MCDIARMID

scene. And it is still pretty much in that status.

DR. SMITH's article surveys recent developments along this line, including changes in Maine's power demand and market outlook. In addition to his faculty duties in New York, DR. SMITH (who also has an AM and PhD from the University of Wisconsin) is a member of the Maine Governor's Committee on Passamaquoddy Development.

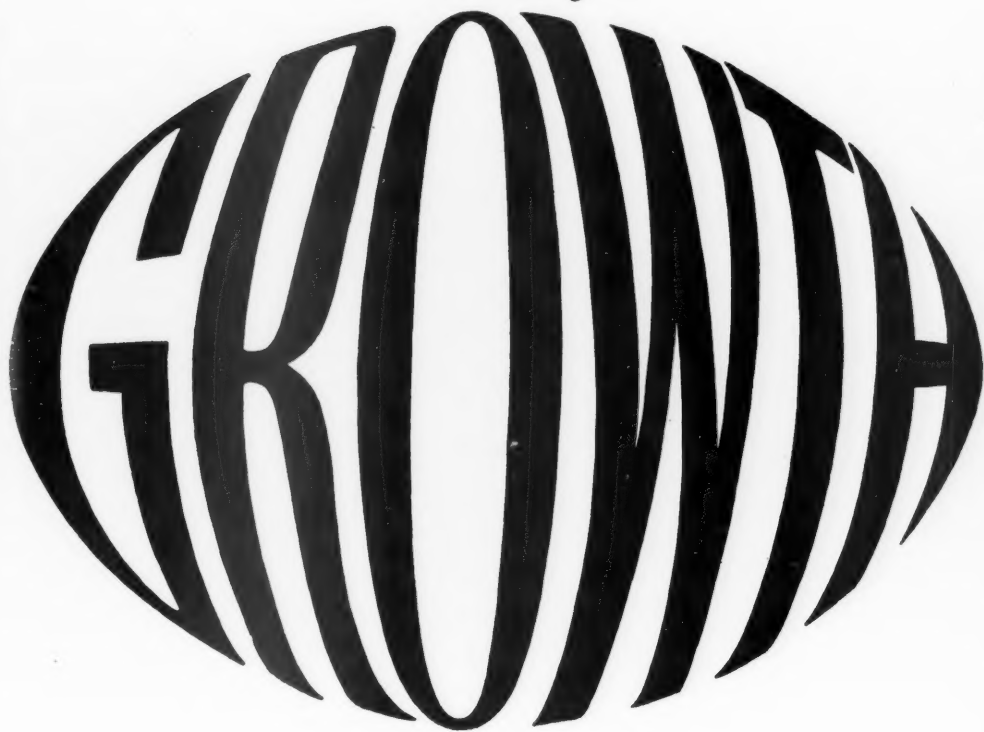
* * * *

LOYD G. HAMMEL, whose article entitled "Is Regulation Keeping Up with the Times?" begins on page 893, is an assistant attorney general of Oregon and chief counsel for the Oregon Public Utilities Commissioner. He is a graduate of Purdue (BS, '47) and Michigan University Law School (LLB, '49). He left private practice in 1952 to become an assistant attorney general and has had a wide variety of trial and appellate experience for many different state agencies. He was appointed chief counsel for the Oregon commissioner in July, 1959, and has been involved in a considerable number of rate proceedings, mergers, and utility reorganizations.

THE next number of this magazine will be out December 21st.

The Editors

Do you have a
Utility



problem?

America is growing.

Our population is not only increasing in numbers, it's spreading. Industry is expanding to meet challenging new opportunities.

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in making the many financial decisions incidental to growth.

Our Analytical Studies, Seminars and Round Table Conferences have helped many Utilities bring added vitality to their capital planning, financing and cultivation of the financial community.

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Coming in the Next Issue...

(DECEMBER 21, 1961, ISSUE)

BY TRENDING RATES, CAN YOU PREDICT CHARGES?

A member of the staff of the California Public Utilities Commission, Frank F. Watters, discusses the future trends of extension and expansion which will affect the California, and nationwide, utility industry. The article gives a utility industry forecast and sets forth the commission's rules on extension of service and how they will affect gas, power, and other utilities which serve the growing West coast population. The author also explains the reasons behind the commission's policy of thinking of adequate service at the present, rather than being unnecessarily concerned with trends in the future.

HOW NEW ACCOUNTING TECHNIQUES CAN IMPROVE EARNINGS

The author of this article, Willard F. Stanley, writes about two accounting treatments which he believes are not being used by the great majority of investor-owned utilities in this country, but which possibly might add considerably to the common stock earnings of utilities if they were successfully employed. Under the assumption that production of maximum per share earnings for common stock is one of the prime responsibilities and aims of all utilities, Stanley explains the two "new" methods of accounting which, though popular in other industries, have not been widely adopted in the utility business.

HOW DO UTILITY EARNINGS GROW?

This article, by Professor M. Richard Sussman, is a sequel to his recent contribution to the FORTNIGHTLY, entitled "Price-earnings: Price-dividends?" in which he examined the influence of earnings and dividends on the common stock prices of investor-owned utilities. The present article provides probable results of the theories advanced in the initial discussion by applying the ideas to the operation of an hypothetical electric power company. Professor Sussman, assistant professor of finance at Pennsylvania State University, suggests and illustrates four general methods of causing earnings per share to increase.

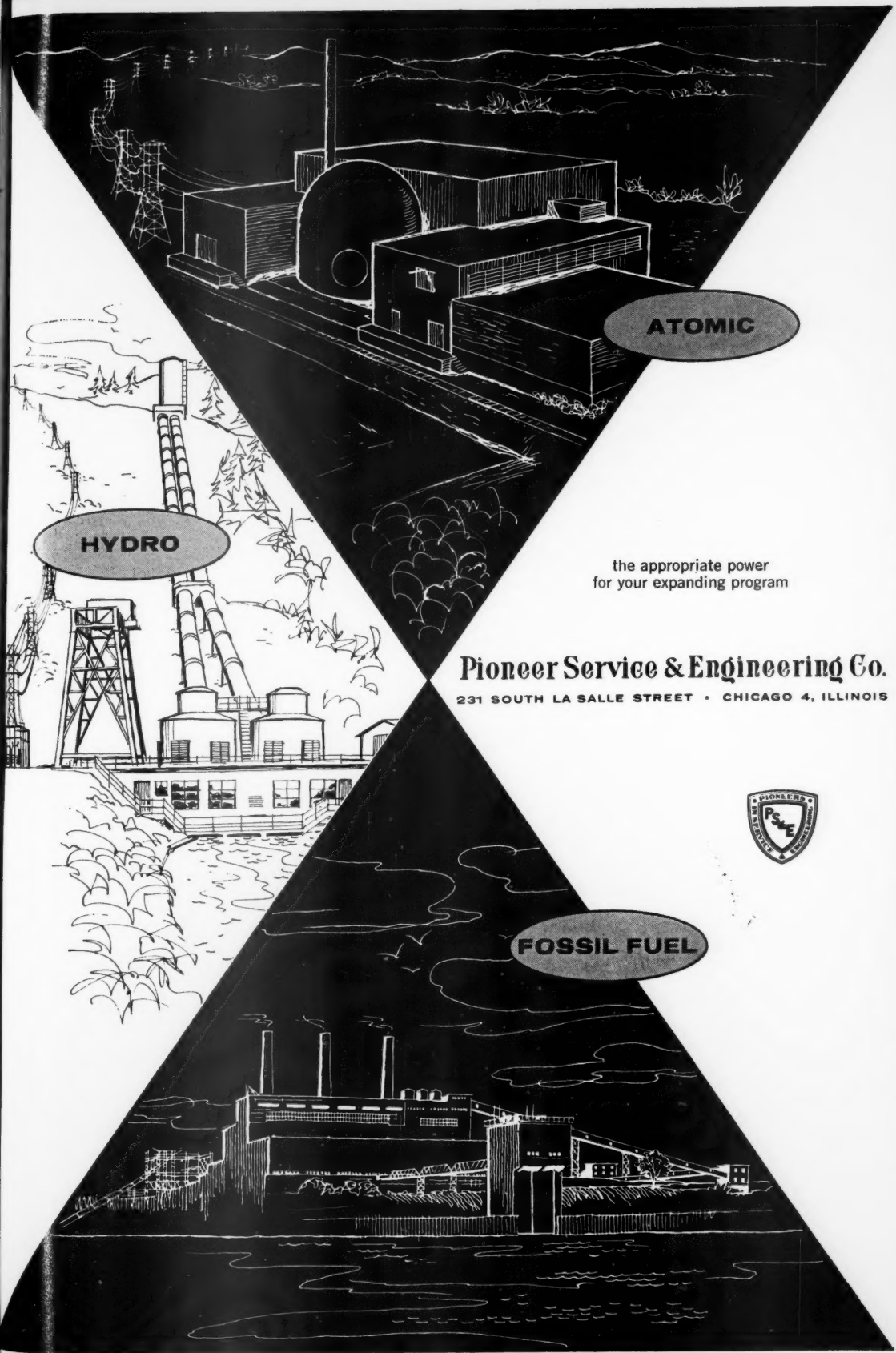
AND IN ADDITION . . . Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.

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Remarkable Remarks

"There never was in the world two opinions alike."

—MONTAIGNE

EDITH GREEN
*U. S. Representative
from Oregon.*

"If we could bring about [saline water] conversion at a price that consumers could afford, we would in truth make the deserts bloom."

STUART T. SAUNDERS
*President, Norfolk & Western
Railway.*

"The co-operation of labor is essential to the success of railroad mergers, and it is just as important for labor as it is for management that mergers be successful."

LLOYD V. BERKNER
*President, Institute of
Radio Engineers.*

"For the welfare of the nation and for the health of the electronics profession and industry we should cast our blinders aside and look at the opportunities that wait."

EDITORIAL STATEMENT
The Wall Street Journal.

"If we continue to let the government mismanage the railroads, the upshot undoubtedly will be nationalization. And we will have solved nothing by taking that train to nowhere."

NEWTON N. MINOW
*Chairman, Federal Communications
Commission.*

"To those few broadcasters and their professional associates who would evade the nation's needs crying 'Censorship! oh where will it end?'—I ask: 'Responsibility—when will it begin?'"

DWIGHT D. EISENHOWER
*Former President of the
United States.*

"The value of a political system is measured by the ultimate destiny of those who live under it. If it robs man of his soul, his dignity, his freedom, it must be renounced, whatever the immediate result may be."

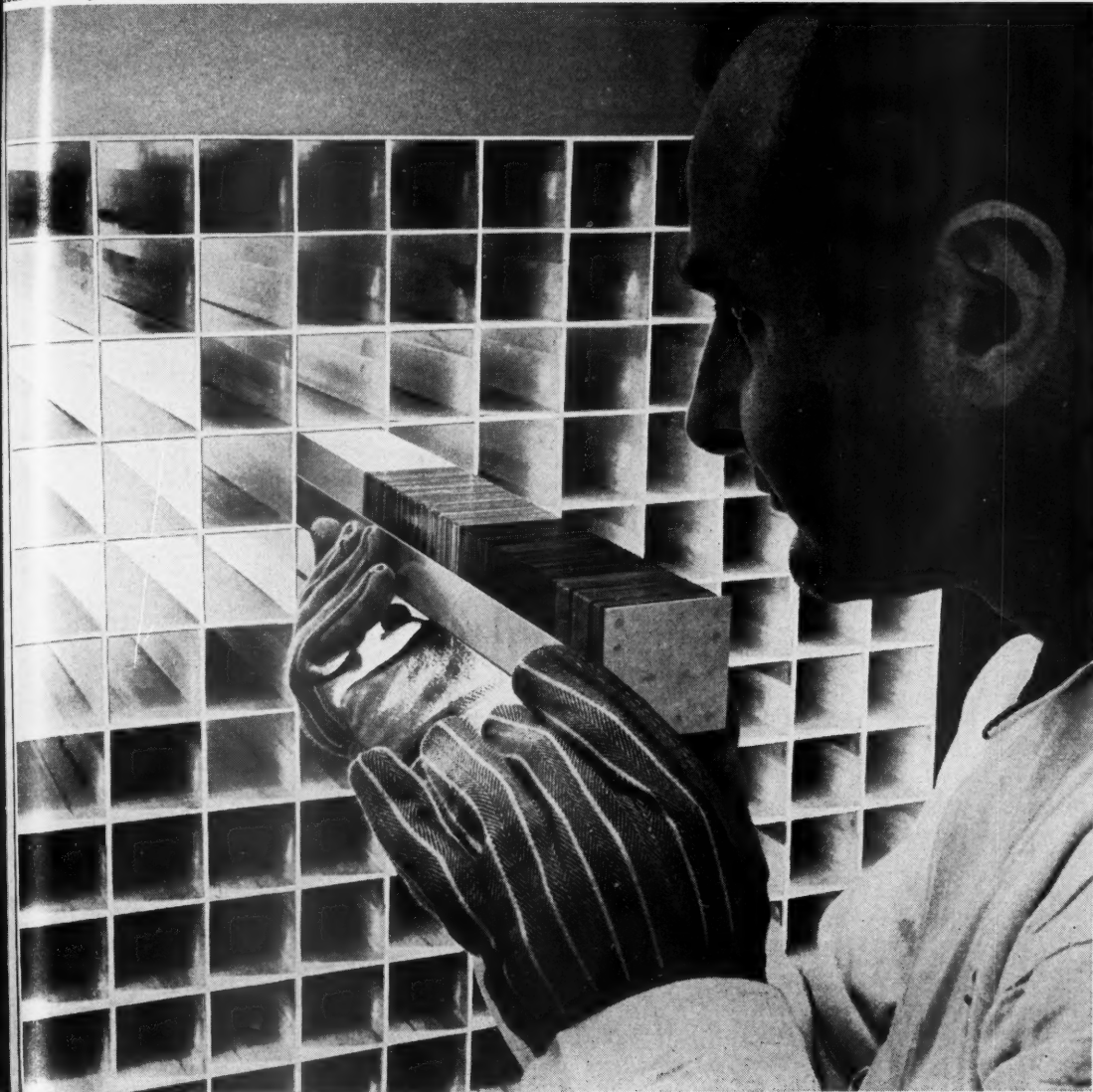
*Excerpt from
Interstate Commerce Commission
report recommending federal
subsidies for railroads.*

"A nation that is serious about propelling a man to the moon should be able to solve the mundane problem of moving its citizens dependably and comfortably some fifty miles or less from home to work without multiplying ribbons of concrete and asphalt that would strangle the central cities they are supposed to serve."

THOMAS B. REID
*Manager, civic and governmental
affairs, Ford Motor Company.*

"A kind of schizophrenia seems to overtake many business people in their approach to government. They cry government interference when laws are passed affecting their companies and any of the things they want to do. But just as loudly they cry, there ought to be a 'law' to keep the other fellow from doing what they don't want him to do. . . . There is no reason whatsoever for the business man to disenfranchise himself by turning his back on any kind of participation in political affairs just because he happens to be a businessman."

ical assembly" machine now operating at AI is part of AETR project for Southwest Atomic Energy Associates



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In the dynamic decade ahead, the demand for electrical power will be expanding faster than ever before. To meet this vastly increased need, new and highly advanced concepts are needed. A promising nuclear concept is the Advanced Epithermal Thorium Reactor. The AETR is under active study today by Atomics International for the Southwest Atomic Energy Associates, fifteen investor-owned utility companies. Two other nuclear concepts pioneered by Atomics International are being applied in construction of power stations in Piqua, Ohio, and Hallam, Nebraska, as part of Atomic Energy Commission programs. These are some of the ways AI is helping the power-producing companies of the world double the supply of electricity in the next ten years.

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If it's your responsibility...

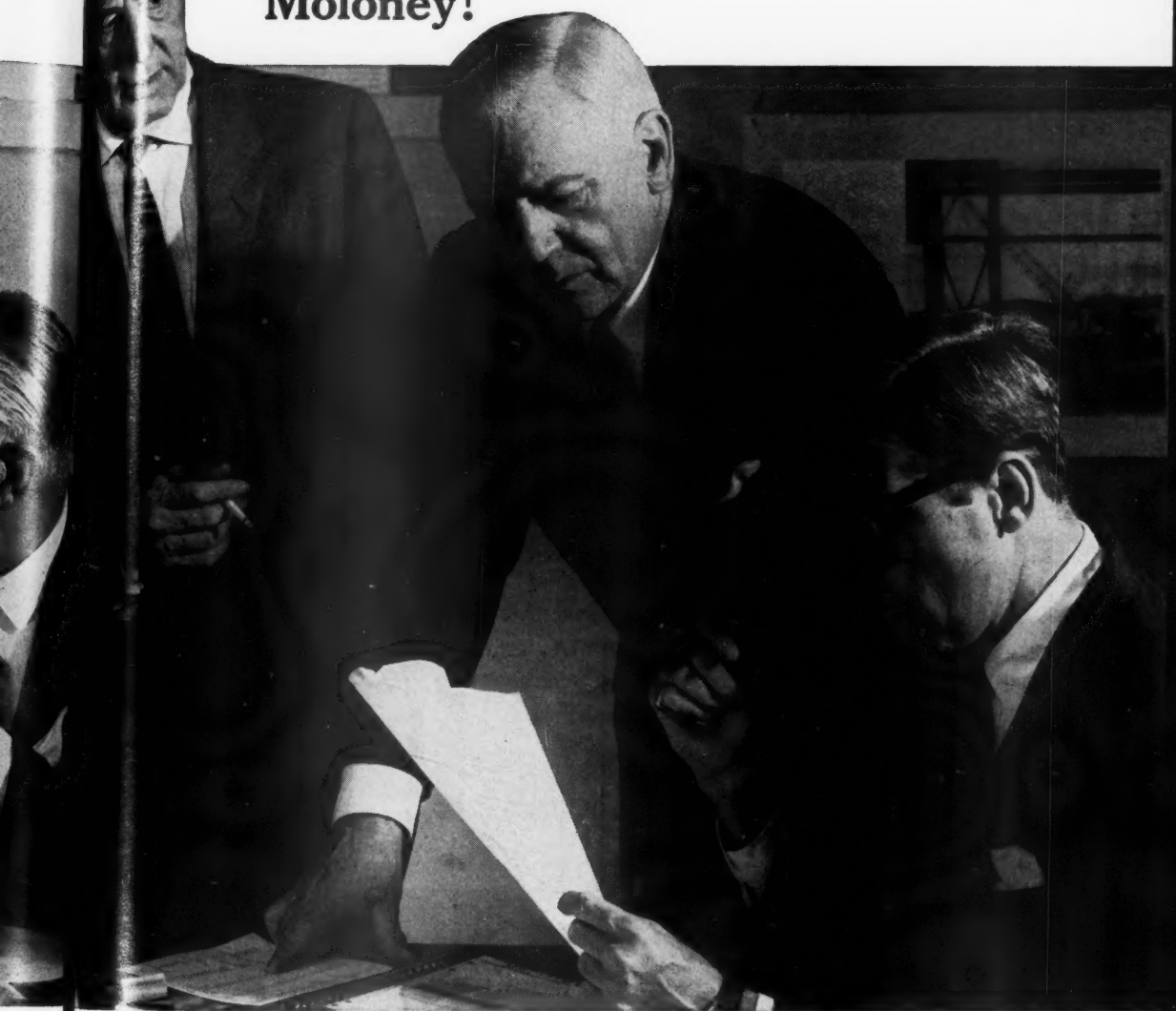


Why Moloney?

MOLONEY ELECTRIC COMPANY

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and Electronic Applications

to select distribution transformer suppliers, then it's important you consider Moloney!



Because Moloney "Total Design" Transformers will give you efficient, customer satisfying performance.

Moloney's emphasis on "Total Design" transformer performance, so vital to your utility system, assures you that no one feature is stressed at the expense of another. Each new innovation must contribute to improvement in "Total Design".

For example, the thermal operating efficiency of Moloney Transformers has been substantiated by the AIEEE-NEMA Life Tests, in which Moloney has participated since their inception. To further improve the "Total Design", Moloney developed Dura-therm, one of three high temperature insulating papers presently available, which give still greater thermal capability.

Investigate the "Total Design" transformers and see what they offer for your system.



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Unusually Capable Middle Management Men

We are looking for two younger, middle management men whose background and experience are such that they could, by performance, qualify for officership in our Company in not more than five years—and we would hope at a much earlier date.

The men we are seeking are probably under 35. They combine operating and technical knowledge (including an engineering degree) with broad administrative experience at middle management levels. Successful candidates will likely have had background in a combination of two or more of the utility fields: electric, gas, telephone and water. They will have had experience in facilities planning and construction and property operation—but they also should have a broad view of the utility business, including regulatory, customer and governmental experience. They must demonstrate a comprehension of the real economic—as distinguished from facilities functioning—aspects of utility affairs.

Above all, they will be men who comprehend why the keystone to personal progress is achievement for the owners of a utility enterprise.

Starting compensation will be a significant increment over your present salary—but it will not be this immediate increase, nor our unusually fine program of “fringe” benefits, which attracts you. Rather, it will be the, we believe, extraordinary opportunities for rapid personal progress—financially and in status. Ours is a company whose administration is strongly committed to the principle of opportunity for ability and reward for productive endeavor, regardless of age or years of service. We evaluate not less often than annually the contribution each member of our administrative group makes toward the Company's progress and establish his compensation accordingly. A number of our staff have had their compensation doubled or tripled within periods of time unduplicated elsewhere in the industry.

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If you are such a man, write us the full details of your education, background and experience, including your present responsibilities and compensation. If you know of someone you think can qualify, suggest that he write. All replies will be treated in complete confidence. Our organization knows of this advertisement.

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and delivered with

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ANSWER YOUR CHRISTMAS
SEAL LETTER TODAY

Utilities Events Calendar

CHECK THESE DATES:

Dec. 7—American Waterway Operators, Inc., will hold annual meeting, Washington, D. C.

Dec. 12—Public Information Program, Steering Committee, will hold meeting, Chicago, Ill.

Dec. 12-15—American Society of Agricultural Engineers will hold winter meeting, Chicago, Ill.

Dec. 13-14—Ohio Valley Transportation Advisory Board will hold meeting, Cincinnati, Ohio.

Dec. 14—Air Transport Association of America will hold membership meeting, Washington, D. C.

Dec. 27-29—American Marketing Association will hold annual winter conference, New York, N. Y.

1962

Jan. 9-11—National Symposium on Reliability and Quality Control will be held, Washington, D. C.

Jan. 15-17—National Telephone Co-operative Association will hold annual meeting, New Orleans, La.

Jan. 17—New England Gas Association, Operating Division, will hold meeting, Framingham, Mass.

Jan. 18-19—Public Utilities Advertising Association, Region 9, will hold meeting, Palm Springs, Cal.

Jan. 19-21—Advertising Association of the West will hold annual conference, Fresno, Cal.

Jan. 21-24—National Association of Electric Distributors will hold southern regional meeting, Palm Beach, Fla.

Jan. 22-25—Plant Engineering and Maintenance Show and Conference will be held, Philadelphia, Pa.

Jan. 22-26—American Society of Mechanical Engineers will hold symposium on thermophysical properties, Princeton, N. J.

Jan. 22-26—National Fire Protection Association will hold technical committee meetings, New York, N. Y.

Jan. 23—American Water Works Association, New York Section, will hold luncheon meeting, New York, N. Y.

Jan. 24-25—Southeastern Electric Exchange, Legal and Claims Committee, will hold meeting, New Orleans, La.

Jan. 28-31—American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., will hold semiannual meeting, St. Louis, Mo.

Jan. 28-Feb. 2—American Institute of Electrical Engineers will hold winter general meeting, New York, N. Y.

Jan. 29—First National Salesmen's Week will begin.

Feb. 5-8—National Industrial Electric Heating Conference will be held, Cincinnati, Ohio.

Feb. 5-9—American Society for Testing Materials will hold committee week, Dallas, Tex.

Feb. 7-9—National Winter Convention on Military Electronics will be held, Los Angeles, Cal.

Feb. 8-9—Edison Electric Institute-American Gas Association will hold accounting conference final working meeting, Cleveland, Ohio.

Feb. 9-11—Air-Conditioning and Refrigeration Wholesalers will hold annual convention, Los Angeles, Cal.



Philadelphia Electric's New Power Plant

On November 9th, this new 726,000-kilowatt electric generating plant on the Delaware river at Eddystone, Pennsylvania, was dedicated.

For further notes on this newest plant of the Philadelphia Electric Company's system, see page 930.

Public Utilities

FORTNIGHTLY

VOLUME 68

DECEMBER 7, 1961

NUMBER 12



The Status of Power Supply in Maine

This article traces the changes in Maine's power situation in the last ten years and ties in these changes with legislative and economic policies and developments.

By LINCOLN SMITH*

SOME major economies in the production and distribution of electricity, significant paper developments in the contemplated tidal power project in Passamaquoddy Bay, and important additions to the generating capacities of power companies summarize the power scene in the state of Maine in recent years. But Maine's power policy is not confined to a single state, because it affects a region, overflowing into New Hampshire and the Canadian Province of New Brunswick—with repercussions of even greater geographical magnitude.

Maine and New Hampshire power companies now are interconnected, which

brings Maine into the New England power pool. And to the north, Maine power connects with that of New Brunswick, where additional interchanges are proving highly profitable. This brings Maine into the New Brunswick-Nova Scotia interprovincial grid. These interconnections now tie together six states and two provinces.

THIS article purports to survey changes in the power situation in the last ten years—since publication of the author's monograph on "The Power Policy of Maine."¹ That study centered on the Fernald Law passed in 1909 to prevent corporations from transmitting hydroelectricity beyond the confines of the state. The conclusion was that the power em-

*Associate professor of political science, New York University, School of Commerce, Accounts, and Finance, New York, New York. For additional personal note, see "Pages with the Editors."

PUBLIC UTILITIES FORTNIGHTLY

bargo was economically unsound and that it constituted state interference with interstate and foreign commerce. Likewise, a plea was made for a major scientific survey of the Passamaquoddy tidal power project. Subsequently the embargo law was repealed, and the Quoddy survey made.²

The Fernald Law was repealed by the Maine legislature in 1955. The Quoddy survey was completed in April, 1961. This article concentrates on these two points, with some attention to demand curves of Maine power companies.

THE academic contention that the power embargo was sound for 1909 when passed but obsolete in 1950 was proved to be based on pragmatism since repeal. President W. F. Wyman of the Central Maine Power Company anticipated benefits from power interchanges with New Hampshire, but noted that evaluation of tangible results would have to be held in abeyance: "While the ultimate extent of such interchange cannot be specifically evaluated . . . [at the outset], it should benefit company operations both in respect to the energy interchanged and the company's reserve generating capacity requirements."³

Central Maine Power Company and the Public Service Company of New Hampshire filed, effective January 20, 1956, an interchange power agreement with the Federal Power Commission on an economy flow basis. Whenever one company has available spare generating capacity which has a lower increment cost than the decrement cost of a block of capacity of the other company, the more efficient capacity is utilized and the savings are divided equally.⁴

TESTIFYING before the Maine Public Utilities Commission in a rate case on July 18th of that year, President Wyman stated that Central Maine Power Company received benefits that totaled approximately \$20,000 in the first four months since the interchange began to operate that March. He added:

We have also . . . for the remaining seven months of 1956, measured these benefits in terms of sale and purchase and the other items that make for benefits, so that the total ten months runs to around \$100,000 saving or benefits, that is before taxes. . . . There are further benefits which [repeal of] the Fernald Law has opened up, but which are way, way along in the future. . . .⁵

More recent data from President Schiller of Public Service Company of New Hampshire show that over 300 million kilowatt-hours have been interchanged at a total savings of over \$500,000.⁶

THE Maine Public Service Company promptly obtained from the legislature an amendment to its charter to obtain benefits from repeal of the Fernald Law.⁷ In the words of its president, C. H. Stetson:

We then entered into a contract with the New Brunswick Electric Power Commission whereby a 69-kilovolt interconnection was made between our system and the transmission system of the New Brunswick Electric Power Commission. This interconnection makes possible the interchange of economy energy between the two systems as well as an exchange of capacity to either system in case of emergency. The New Brunswick Electric Power

THE STATUS OF POWER SUPPLY IN MAINE

Commission has since entered into a contract with the Nova Scotia Power Commission and the Nova Scotia Light & Power Company, Limited, whereby the three power producers have interconnected their systems. . . .

Our tie with the New Brunswick Electric Power Commission has proven very beneficial to both parties. We receive a considerable number of kilowatt-hours from their system during periods when their steam plants are not efficiently loaded and occasionally surplus hydro energy from their hydro stations is available to us. On the other hand, our steam and diesel plants have delivered kilowatt-hours into their system when their hydro capacity has been low. . . .⁸

MAINE PUBLIC SERVICE COMPANY also has entered into a surplus capacity agreement with New Brunswick for purchase of firm power.⁹ This plan is subject to approval by the National Energy Board of Canada for an export license, hearings on which already have been held.¹⁰

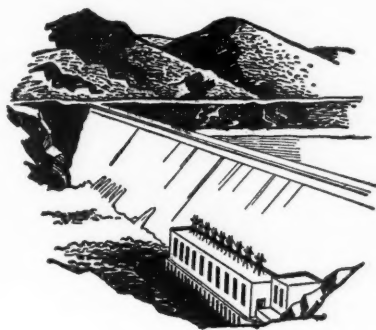
Although the Bangor Hydro-Electric Company was not affected by the Fernald Law, it has connections with other Maine companies to link the international jurisdictions together.¹¹ Likewise there have been no changes in the last quarter of a century affecting Maine companies and the Shawinigan Water & Power Company which is affiliated with the Quebec Power Company.¹²

The Passamaquoddy Problem

THE Quoddy tidal power project in the Bay of Fundy between eastern Maine and New Brunswick continues to rumble since the favorable report of the U. S.

Army Engineers was released to the International Joint Commission in October, 1959.¹³ The report by Army and associated engineers, based on a \$3 million three-year study, concluded that the project, with auxiliary hydro at Rankin Rapids in New Brunswick, "if built entirely by the United States at an interest rate of 2½ per cent, is economically justified."¹⁴ The Engineers further concluded that if built entirely by the United States there would be a favorable benefit-cost ratio of 1.31. But the proposition to construct the project by the United States and Canada on a 50-50 basis of cost and allocation of power was rejected as economically unsound for Canada. Differences in prevailing interest rates was a major factor in this finding.

BUT the report of the International Joint Commission between the United States and Canada to the respective governments in April, 1961, was unfavorable—that the project "will not permit power to be produced at a price which is competitive with the price of power from alternative sources."¹⁵ The commission declared that normally "a proposed power development is not considered to be economically feasible if the benefit-cost ratio



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is less than 1.0."¹⁶ On that basis the various alternative project combinations were categorized as marginal. The economic data for the entire project varied from .44 to .82. The Canadian half was considered below that. Except for a combination of the tidal project and all of Rankin Rapids (1.10) the benefit-cost ratio for the United States half of the project varied from .58 to .80. The 1.10 finding is of academic interest only, because the unfavorable ratio for the correlative Canadian half of the project would almost automatically preclude Canadian participation in the construction.

THIS report, however, was replete with value judgments over which reasonable men disagree. IJC rejection of the engineering board's decision to combine cost of tidal dams and the auxiliary project at Rankin Rapids is illustrative. Both agreed that hydro development at Rankin Rapids by the United States is economically very feasible, and that Quoddy alone is marginal by orthodox standards for power dams. Army justification of the favorable 1.31 ratio tied together joint benefits from Quoddy and the auxiliary at Rankin Rapids. But the IJC insisted that "the tidal project is clearly uneconomic" and that it is fallacious to justify the composite plan when a desirable portion offsets the infeasible component.¹⁷

It is difficult to appraise Quoddy impartially, because like all public power schemes it is full of emotional connotations. Central Maine Power Company has been skeptical for many years.¹⁸ Maine Public Service Company, whose territory would involve the proposed supplemental hydro development on the Saint John river, likewise is not enthusiastic:

It is our fundamental belief that each project in the direction of enlarging the functions of the federal government in paternalistic rôles is one more step towards Socialism. . . . We are opposed to any venture that increases the rôle of government in business.¹⁹

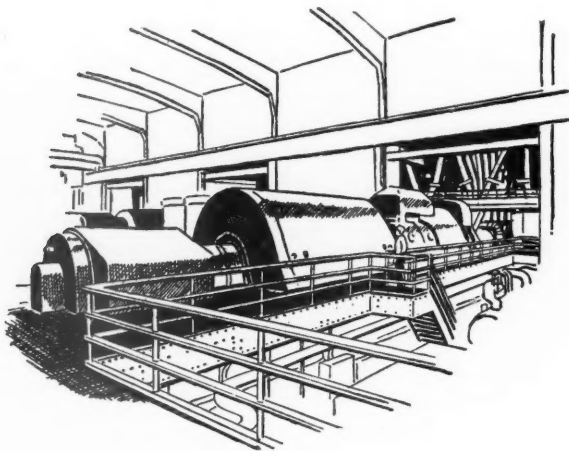
BUT the Bangor Hydro-Electric Company, whose territory is in the immediate Quoddy area, is somewhat more receptive:

Presently effective state of Maine legislation related to the project is satisfactorily assuring that existing investor-owned utilities in Maine are protected. The company has no reason to fear that Quoddy will be competitive so far as local distribution of energy is concerned. It is being presented as a public power proposal. . . . Only in that respect can we be disturbed in viewing it as a venture that further spreads the government in business philosophy. However that may be, the expenditure of some six or seven hundred millions in eastern and northern Maine must reflect favorably on the economic climate of the entire area; and if . . . Quoddy is to be a public power project, with interest charges on the entire investment at only 2½ per cent per year, and if the operation is to be free of local, state, and federal taxes, the venture might offer a new low-cost power source to the company.²⁰

What to Do about Quoddy

MANY years ago it was suggested that Quoddy might be constructed and operated as a "mixed" enterprise similar to numerous utility undertakings in Eng-

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land and other European democracies.²¹ More recently this writer as a member of the Maine Governor's Committee on Passamaquoddy Development has urged consideration of this plan as a compromise between exponents of public and private power. But several political leaders on each side seem adamant in yielding or meeting the other side halfway.

The IJC survey revealed several uncontroverted and highly significant principles. Quoddy would be more than a power dam. It would be a multiple-purpose project, favorably affecting navigation, recreation, and tourist industries, conservation, and industrial development, and an international highway across the dams reducing travel distance 40 miles between two border communities. Furthermore, construction of the auxiliary hydro project on the Saint John river would affect navigation and flood control.

AT the request of President Kennedy the IJC conclusions are now under scrutiny by the executive branch. This

survey is to be on a larger natural resources point of view—not on power alone.²² Major responsibility is focused on the Department of the Interior, and Secretary Udall will tour the site this autumn. Furthermore, Secretary of State Rusk has asked the Army Engineers to comment on the adverse IJC report²³; and its deputy chief has inspected the site.²⁴ Although Interior seems friendly to public power, it also is concerned with parks and wild life. And construction of Rankin Rapids would overflow some fine hunting and fishing lairs in the Allagash national recreation area. Both the National Park Service (Interior) and the Fish and Wildlife Service (Interior), as well as the Maine Department of Inland Fisheries and Game, have issued propaganda against this phase of the power project. How this internal contradiction is resolved will have some effect on the recommendations of this department.

WITH a general consensus that today Quoddy is infeasible as a single-pur-

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pose power plant, the case for tidal power rests on a broader perspective—as a multiple-purpose project which combines dams in the Bay of Fundy with hydro at Rankin Rapids to firm up tidal power. In this more inclusive frame of reference, justification of the combination depends first upon repudiation of some of the value judgments of the International Joint Commission. Here follows a capsulization of the writer's appraisal of that report.

THE IJC report was based on "conventional methods of economic analysis of hydroelectric projects in the United States and Canada."²⁵ It then calculates the benefit-cost ratio on a basis of "criteria different from the conventional concepts of economic analysis with respect to such factors as interest rates, amortization period, taxes foregone, and allowance of recreational benefits," but still labeled the project marginal. This is an admission, however, that double standards of evaluation exist. And there may even be more.

Multiple-purpose projects are much more complicated than power dams; their validity defies precise formula, because such intangibles as social benefits, long-range plans, and indirect accretion are highly relevant. In fact, much of the controversy over the TVA (and other public projects) involves scales of values—proper cost allocation for power, navigation, defense, etc. On this basis the IJC report is defective. The microscopic view of condemnation of Quoddy as a power project eschews the macroscopic approach. Single-purpose and multiple-purpose projects must be evaluated on different bases. In addition, the IJC decision to require economic justification of Quoddy

and Rankin Rapids hydro as separate entities is fallacious. They are bound by affinities of interest. They are complementary to and coextensive with each other. Economic isolation of these two potential sources of power from each other is just as illogical as Maine's long-time power embargo which isolated the state from some more efficient and less costly sources of secondary power in neighboring states and provinces.

ONE oversight of the IJC report was failure to consider and give weight to the factor of national defense in this multiple-purpose scheme. The executive branch may be expected to correct this deficiency. The rationale starts as a conservation measure, the term meaning wise use of resources. Coal and oil are being used up, but tidal power cannot be. More important, though, tidal power can be used for industrial and domestic purposes and thus save oil to be used for higher uses—more immediate military purposes. This point can be enlarged greatly. Its validity in a war economy cannot be measured in terms of dollars and cents today. As such, Quoddy should be considered as an integral part of a greater St. Lawrence seaway.

A few specific points conclude this critique. The IJC decree to allot fifty years for amortization of Quoddy (based on custom of the Federal Power Commission) is too short if not arbitrary. There are valid reasons for considering this unique project on a basis of seventy-five or even 100 years. Then again, more economic weight ought to be given to such factors as navigation and flood control on the Saint John river, recreation, conservation, and industrial development.

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Growing Market for Quoddy Power

THERE was no exaggeration in the Quoddy report that the economies of Maine and New Brunswick would absorb the entire output of the combined project in stride. New sources of power are essential on both sides of the border. Inasmuch as the consumption growth in Maine has been largely for firm power, the power companies have resorted to new and modern thermal installations for the most part. With a few exceptions, Maine's worth-while hydro potential was developed long ago. This fact contributed to the ease with which the power embargo was terminated in 1955. A hasty survey of recent power developments shows that the companies have met accelerated demand for firm power mostly by orderly installation schedules.

Even in the matter of secondary power affected by reciprocal exchanges with nearby states and provinces, Maine has imported more power than she has exported. From 1956 to 1960 the amount of purchases on the interchange basis by the Central Maine Power Company from the Public Service Company of New Hampshire compared with the amount sold was on a ratio of nearly two to one. The interchange purchases by the Maine Public Service Company from New Brunswick, Canada, compared with the amount sold were on a ratio of nearly 67.5 to 1.²⁶ The Bangor Hydro-Electric Company does not import or export power in interstate or foreign commerce. Its sporadic exchanges with adjacent Maine companies have been modest.

THE Bangor Company has increased fuel generation as a production source of power twenty times in the in-

terval from 1951 to 1960.²⁷ Its fuel generation in relation to its total production sources likewise has increased in sharp proportions. In 1951 this hydro company obtained only about 3 per cent of its current from fuel generation. In 1960 the company depended on hydro for about two-thirds of its power and fuel furnished about one-third, or more than 30 per cent. This comes from new plants and numerous additions to existing ones. New installations serve "end of the line" functions as well as peak load carrying ability.²⁸ Recent construction connects with substantial new defense loads for the Air Force and a new Navy facility.

ENERGY requirements for Maine Public Service Company have expanded in thousands of kilowatt-hours from 142,783 in 1955 to 220,885 in 1960. This company has shown a fairly close ratio of steam and hydro generation. Steam, however, was its greater source of energy except for 1958. Water conditions then were very favorable for hydro.²⁹ Some of this company's problems are unique. It owns a subsidiary in Canada—Maine & New Brunswick Electrical Power Company, Ltd., which owns and operates the Tinker



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hydro and diesel plant in New Brunswick, generating primarily hydroelectricity for sale to the company and for distribution in a relatively small provincial agricultural area. Since the storage reservoirs for the Tinker plant and the major portion of the transmission and distribution lines are located in Maine, the properties of the company and subsidiary are operated as a single interconnected system. Army installations in the territory, as well as new consumer demands for industrial development in the famous potato land—Aroostook county—account for much of the increase.

Since July, 1961, Maine has been receiving electric energy from the Yankee Atomic Electric Company project at Rowe, Massachusetts. Central Maine Power Company is one of the ten sharing participants in this project which is licensed by the Atomic Energy Commission to operate at full thermal capacity which will enable it to generate approximately 145,000 gross kilowatts. There were no illusions that this would be low-cost power at the outset, but experimentation would provide firsthand experience in an atomic power plant.³⁰

Present Power Demands

TOTAL installed generating capacity for Central Maine Power Company, based on name-plate ratings, almost doubled between 1951 and 1960. Actual figures are 295,467 and 547,935 kilowatts.³¹ Subject to fluctuations, Central Maine often obtains about two-thirds of its electricity from hydro sources and roughly one-third from steam electric plants. The new William F. Wyman station (steam), the Harris station (hydro), and additions at Wiscasset account for

most of the new capacity. In the last ten years this company has spent more than \$100 million in new and improved plant equipment.³²

As predicted in the book a decade ago, some Maine power companies have come under the jurisdiction of the Federal Power Commission in the interval. Previously the FPC did not assert license jurisdiction over rivers in Maine, and the Fernald Law precluded federal control of rates. At present, however, some Maine plants on navigable rivers operate under federal license, and others are in the process of being licensed. Other high spots of the decade include important alteration of the basic regulatory statutes, numerous changes in the personnel of the Maine Public Utilities Commission (under both Republican and Democratic auspices), and an increasing rôle of the supreme judicial court of the state in determining application of regulatory policies.

IN conclusion, what are the results of Maine's new power policy in the last ten years? The evidence shows that repeal of the power embargo, as prognosticated in 1951, has been profitable to power companies of Maine and their neighbors. Political leadership in Maine and Washington provided for a comprehensive Quoddy survey—authentic and materialistic. This scientific document, however, is subject to interpretation by political leaders and human equations. It brings Quoddy debates into a new focus—the facts are known and it is now a matter for informed policy makers to make decisions on bases of scientific, economic, political, and welfare value judgments. Unfortunately both in Canada and the

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United States to date, too much superficial propaganda emanates from both sides. But not many democracies yet have found the answer to the public *versus* private power controversy. Finally, enlightened corporate management in Maine has anticipated and met increasing demands for power. But management and regulatory problems offer a new horizon of challenges, because power curves everywhere are dynamic.

What about future power prospects? A descriptive and analytical study requires documentation; but when one ventures to predict, the results usually tend to be subjective—often based merely on hunches or informed guesses. Here, however, extrapolation a decade or more in advance is not entirely in the realm of conjecture. Local trends are apparent; so are axiomatic precepts on conservation of national resources on the national scene. Quoddy appears to be the vacuum which bears watching. This belief is predicated on a chain of reasoning which seems to this writer logical.

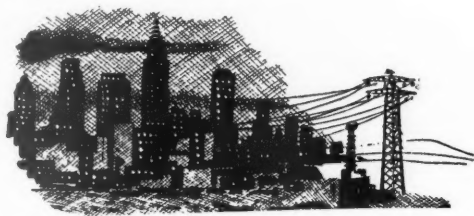
Maine Power Shortage Possible

THERE are no shortages of power in Maine, but the future is uncertain. Fifty years ago Maine's vast resources of hydroelectric power were awaiting development. Today Maine is almost a "have not" state in the matter of valuable unharnessed power sites; its energy demands

are being met more and more by new steam installations. Demands for power a decade or two hence already are matters of grave national concern. The United States Senate has just authorized a comprehensive study of national fuel and energy demands and supply.³³ Its Interior Committee or subcommittee is making a continuing investigation as part of a planning program for national needs. Greater reliance on fuel generation of hydroelectricity hastens the day of reckoning when coal and oil supplies will be virtually extinct. Because of the cold climate, coal is rather difficult to handle during Maine winters in thermal plants, so a greater burden is placed on the use of oil.

Simultaneously, on the other hand, energy from the huge Quoddy tides is wasted daily. These tides are, within known ranges, relatively constant and predictable—unaffected by drought. By means of interconnection with hydro stations much firm power can be created. Development and utilization may well become part of a program for conservation of the nation's energy resources. It is on this basis that the executive branch currently is evaluating the Quoddy studies. It is on this basis that the case for Quoddy now rests.

A STEP in the right direction is construction of the Rankin Rapids dam



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and reservoir on the upper Saint John river in Maine. The International Joint Commission called this a "prerequisite to its use to supply incremental firming capacity for the tidal project."⁸⁴ Initially it would furnish 200,000 kilowatts. Later 260,000 kilowatts of additional dependable capacity could be produced as auxiliary to Quoddy itself. The economic feasibility of Rankin Rapids now is based on concrete evidence.

The current validity of Quoddy is debatable, depending upon whether the IJC

formula or another based on social values is chosen. The IJC did recommend that Quoddy "be viewed as a long-range possibility having better prospects of realization when other less costly energy resources available to the area are exhausted."⁸⁵ Changes in time, space, and distance relationships in the world today, however, sometimes make long-range plans much more opportune than even the planners comprehend. Many of the marginal power sites today are the practical ones of tomorrow.



Footnotes

- ¹ University of California Press (1951).
- ² "The Repeal of Maine's Power Embargo," *PUBLIC UTILITIES FORTNIGHTLY*, February 2, 1956, Vol. 57, No. 3, p. 150; "The Quoddy Project Stirs Again," *Ibid.*, November 5, 1959, Vol. 64, No. 10, p. 753. Miss Edith L. Hary, legislative and reference librarian, wrote the author from Augusta on August 24, 1955: "You would be pleased to know how many legislators used your book on 'Water Power Policy' this past winter."
- ³ Letter to the stockholders of the Central Maine Power Company, Augusta, Maine, June 30, 1955.
- ⁴ "Interchange of Secondary Electric Energy between Central Maine Power Company and Public Service Company of New Hampshire" Rate Schedule FPC No. 1, dated January 13, 1956.
- ⁵ F. C. No. 1498, Augusta, Maine.
- ⁶ Manchester, New Hampshire, July 27, 1961.
- ⁷ The reason this company needed to obtain an amendment to its charter while others did not was that previously its charter did not permit the export of any kind of energy from Maine. The Fernald Law applied to hydroelectricity only, it did not prevent corporations from transmitting fuel-generated electricity outside.
- ⁸ Presque Isle, Maine, August 15, 1961.
- ⁹ Mr. Stetson's letter continued: "This supplemental agreement will allow either party to the contract twelve (12) months in advance with the other party for the purchase of firm capacity, when available, for the period of one to four years, provided 10 per cent capacity reserves and other contractual arrangements are mutually satisfactory to each party."
- ¹⁰ Maine Public Service Company annual report, 1960, p. 6.
- ¹¹ Letter from President R. N. Haskell, Bangor, Maine, June 13, 1961.
- ¹² Letter from Jean Saint-Jacques, vice president, Quebec Power Company, Quebec, P. Q., July 25, 1961.
- ¹³ Report to the International Joint Commission by the International Passamaquoddy Engineering Board (Washington, 1959).
- ¹⁴ *Ibid.*, p. 19.
- ¹⁵ "Report of the International Joint Commission," Docket 72 (Washington-Ottawa, 1961), p. 33.
- ¹⁶ *Ibid.*, p. 24.
- ¹⁷ *Ibid.*, p. 27.
- ¹⁸ Letter to stockholders, Augusta, Maine, June 30, 1961.
- ¹⁹ Annual report, 1959, p. 7.
- ²⁰ Annual report, 1959, p. 5.
- ²¹ Smith, *op. cit.*, Note 1, *supra*, p. 258. The usual arrangement is to create a quasi-public corporation in which the government (in this case it could be national, state, or local) owns and controls approximately 51 per cent of the stock, while the rest is held by private investors.
- ²² Portland Press Herald, August 2, 1961.
- ²³ *Ibid.*, August 9, 1961.
- ²⁴ *Ibid.*, August 12, 1961.
- ²⁵ Note 15, *supra*, p. 33.
- ²⁶ Data furnished by the Maine Public Utilities Commission, Roy M. Somers, secretary, Augusta, Maine, July 17, 1961. From 1956-61 Central Maine sold 105,080,500 kilowatt-hours and purchased 200,726,600 from New Hampshire. Only in the years 1958 and 1960 did Central Maine's export exceed import. Only in 1960 when Maine Public Service Company sold almost 3 million kilowatt-hours to its Canadian neighbors did its export assume much significance.
- ²⁷ Annual report, 1960, p. 11.
- ²⁸ *Ibid.*, 1959, p. 4.
- ²⁹ Annual report, 1958, pp. 3, 5.
- ³⁰ Brochure of Yankee Atomic Electric Company (Boston, n.d.); letter to stockholders of Central Maine Power Company, Augusta, Maine, June 30, 1961.
- ³¹ Data furnished by Harold F. Schnurle, vice president, Augusta, Maine, September 6, 1961.
- ³² Central Maine Power Company, brochure on William F. Wyman station, Yarmouth (n. d.).
- ³³ Portland Press Herald, September 12, 1961.
- ³⁴ Note 15, *supra*, p. 33.
- ³⁵ *Ibid.*, p. 35.

Where Is the Money Coming from?



By FERGUS J. McDIARMID*

*Conclusions on how utility management must adjust
its concepts of raising money to the rapidly changing
American utility picture.*

THIS discussion is essentially about the future, the future sources of public utility financing. If the projected trends in the electric utility industry mean anything at all, it is going to require a great deal of financing in the foreseeable future. The electric utilities, which seem able to project their growth with a good deal of assurance, estimate that their power output will double in the next ten years and that their capital structures will also about double. Presumably when they talk this way they are thinking in terms of dollars of constant value. This means about a doubling in their bonds and preferred stock outstanding and also in their common stock equities. The other divisions of the utility industry seem to lack this precise gift of prophecy, but they also estimate that they are going to need a lot of new capital. Part of this will be raised out of depreciation and retained

earnings but most of it will, no doubt, have to be raised by the sale of new securities to the public—bonds and preferred stock mainly, but some common stock also.

BECAUSE of the nature of the public utility industry, it must raise most of its new capital requirements to finance its growth from the sale of new securities. Industrial companies, on the other hand, can frequently raise most of their capital requirements, sometimes all of them, from depreciation cash and retained earnings. However, because these new capital requirements are so relatively large in the case of the utilities, at least in relation to their earnings, they have had to look to the public money markets for most of their new capital. They, therefore, have a vital interest in the future of the financial markets and the influences which will affect them.

The only halfway intelligent way I

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know to attempt to project the future is by studying the trends of the past and this requires some knowledge of history. Very fortunately for this discussion, I became a keen student of history at an early age and have kept at it ever since.

I even obtained a good working knowledge of the history of the United States—a rare thing in Canada. Up there they teach the history of the various countries in alphabetical order. This put the United States after Swaziland, but at least ahead of Zanzibar.

History is an intriguing subject and from the study of it there are at least two points bearing upon the matter involved that I would like to make. The first of these is that there is a process of acceleration going on in history. This is at least true in the fields of politics and also in industrial and scientific progress. This process of acceleration makes projection of the future very difficult. For example, if 100 years ago in the year 1860 one had been asked to project the next fifty years of development, one could probably have attempted this assignment with much more assurance than one today could project the next ten years. When one thinks of what has taken place over the last twenty years, and you can enumerate these events in your own mind, what may take place over the next ten years is really rather frightening.

Technological Change

Now the reverse side of this coin of accelerating material progress is increased risk of loss through obsolescence. Hardly any industry is free from this risk and certainly not the various divisions of the public utility industry, unless it be the supplying of water. Anyone,

therefore, who claims the utility industry is a riskless industry which should, therefore, be content with a very low rate of return, has just not read economic history. He also seems unaware of the accelerating pace of that history which increases the obsolescence hazard.

THE second historical lesson I would like to draw is the supreme importance of the proper economic and political climate in bringing about rapid material progress. Why, for example, did the industrial revolution begin in Great Britain? Why not in France, which at that time had three times the population of England and much greater national wealth? And the Frenchmen of that time were by no means stupid. It was the age of Voltaire, Rousseau, and a host of scientific and mathematical talent.

I believe the answer can be found in a difference in political and economic climates. England, or rather Great Britain—we must not leave out Scotland—was ready for the industrial revolution while France was not. Britain had had her political revolution in the 1600's and had settled down under a stable constitutional government. A stable currency had been established and a market for bonds and other securities was being created. In such a climate, men had some encouragement to save with a reasonable hope that the fruits of their savings would not be confiscated, excessively taxed, or otherwise swept away.

It is interesting to note that at the very time James Watt, the inventor of the steam engine, was living high on the hog in England from his royalties and the profits of his firm, the great French scientist, Lavoisier, who first isolated the

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element oxygen, was losing his head on the guillotine. This was a poor way to promote scientific progress.

HOWEVER, we do not need to go back that far into history to prove this point. Why has the United States in the last 100 years, and more particularly in the last fifty years, outpaced all other countries of the world in material progress? It is true that we have been blessed with great natural resources but so have some other countries which are still comparatively undeveloped. The native intelligence of our people probably does not differ materially from people elsewhere, or at least in some other areas which have lagged far behind us. Our great advantage has been that, combined with great natural resources and an energetic population, we have in the past at least enjoyed a political and economic climate which has encouraged savings and investment of capital. It is this latter above all which determines the rate of economic growth in any country at any time and in any type of society.

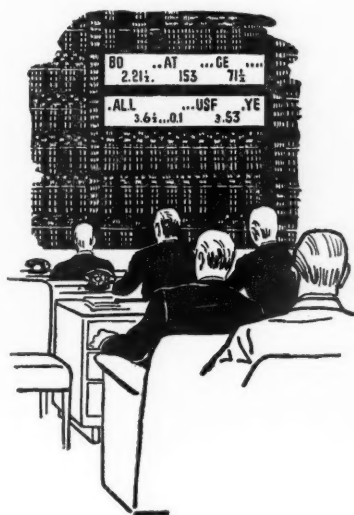
History indicates that this matter of political and economic climate in a country is extremely important in determining the rate of economic progress and growth, and I am going to refer to this later with particular reference to public utilities.

Importance of Investment

TODAY, more than ever, it is the rate of savings and investment that determines the rate of economic growth and also the growth of job opportunities. The average amount of invested capital required in this country to provide one job in commerce or industry has been esti-

mated at about \$17,000, and this figure has been growing rather rapidly. It is much greater in some industries than in others and in the public utility industry, it is away above average.

IN the decade from 1950-60 we added about 8 million people to our work force. However, the number of jobs available, even in this period of great prosperity, did not quite keep pace. This simply means that the rate of savings and investment was not high enough. In our present decade running to 1970, we are pretty sure that we are going to add not 8 million people, but over 13 million people to our work force. To provide them with jobs is going to require a huge amount of capital investment, much more than we have invested in the past. If we conservatively assume that it will require an average of \$20,000 of investment to provide a new job during this period, this will require new investment at the rate of \$26 billion a year to take care of the additional



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work force alone. This \$26 billion figure is considerably greater than the total earnings of our corporations in recent years. To provide reasonably full employment for a whole work force will, no doubt, require considerably more investment than this as the capital required to provide a job is steadily going up. This is no new thing. It has been going on over the 200-year history of our industrial civilization.

UNDER our type of economy, if this amount of capital is going to be saved and invested, the political and economic climate is going to have to be favorable, probably more favorable than it has been lately. Under our system, saving and investing is done out of what is left over after we have consumed what we want. You cannot force people to save and invest, even in public utilities.

However, under Communism, with which we are in deadly competition, it is much different. There the government decides what is to be saved and invested and this saving is a first claim on the national income and the people live, or if necessary starve, on what is left over. The Communists are probably saving and investing a much larger proportion of their national income than we are, out of a vastly smaller per capita income, of course. This is probably the basis for Khrushchev's boast that they will bury us, a boast which we should not take lightly.

One of the appeals of Communism to underdeveloped areas is that it provides a framework for sweating investment capital out of a very low standard of living. That is what is happening in China.

IT is no exaggeration to say that the economic race between Communism and free enterprise is largely a race as to which system will save and invest the most. It is this saving and investing process that determines the rate of growth in production in any economy and also the national strength. This is a race which we cannot afford to lose.

It should be added that we are also in competition on a more friendly basis, but seriously none the less, with the free countries of Western Europe and Japan. In these countries industrial production, starting from a much lower base it is true, has been growing in recent years over twice as fast on average as in the United States, and these countries have little unemployment today. This can only indicate that the process of investment is more rapid there.

Regulation and the Investor

JUST how favorable has the investment climate been in the United States in recent years? My answer, I am afraid, is not very good and not nearly good enough if we are going to have the amount of new investment required to prevent serious unemployment and keep our economy strong. Take a look at corporation earnings, for example. Some readers may be surprised to learn that the total dollar earnings of all American corporations were probably a little lower in 1960 than in 1950. It was around \$23 billion in both years. However, the invested capital of corporations was much higher in 1960 than in 1950, so the return thereon was lower, and in 1960 this capital enjoyed the leverage of a great deal more loan capital. The earnings of American

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corporations were over 8 per cent of national income in 1950 but less than 5 per cent thereof in 1960.

BECAUSE of these trends, some American investors have been looking abroad for places to invest. Ten years ago, if an American corporation did a substantial amount of its business abroad, this was considered to be an adverse factor in valuing its stock. Now such a situation is looked upon with favor by investors because foreign business, at least in Western Europe and certain other parts of the world, is likely to yield a higher profit margin and a higher return on capital than domestic business. This preference for investing abroad is one of the reasons for the gold outflow. The largest reasons, of course, are our foreign aid and military expenditures abroad.

Why, then, you may ask, is our stock market so high? In the first place, the earnings of some groups of American corporations have gone up while others have gone down and not all stocks are up. Then there is the fear of inflation. Many individuals and some institutions

have, to a considerable extent, lost faith in fixed dollar savings media such as bonds and mortgages and are inclined to buy stocks pretty much regardless of price, and this has created a large and insistent demand for stocks. As a result, the Dow-Jones industrial average, which sold below seven times annual earnings in 1950, is now at over 22 times earnings. That is quite a swing. You see, it is not the increase in earnings that has driven up stocks, but their valuation at a vastly higher multiple of those earnings.

THE rise in the stock market has nothing much to do with the rate of savings and investment. It is not so much a sign of economic health as fear of inflation. To some extent at least, the present behavior of the stock market may be interpreted as a vote of lack of confidence in bonds and other fixed dollar media. This is a very serious thing for our economy and certainly for the public utilities, which are accustomed to financing the greater part of their outside capital requirements from the sale of bonds.

With respect to this matter, I would

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like to refer very briefly to the situation prevailing in Great Britain. The British experience in investing capital has been considerably longer than our own, and in the period prior to World War I London was the really important money market of the world. Today a number of British government bonds, some of them of quite short maturities, sell to yield over 6½ per cent.

The 2½ per cent British Consols, which are perpetual bonds, have a history that goes back to the year 1756, or over 200 years. Fifteen years ago these bonds sold close to par. Now, they sell well under 40 to yield 6½ per cent. There were only two previous years in which these bonds sold to yield over 6 per cent, and these were 1797 and 1798. The money markets of the world are again becoming increasingly interrelated and the situation which I have just described may have greater importance to us than we care to admit.

The Status of the Bond Market

In the United States today bonds, other than tax-exempt municipal bonds or bonds which are convertible into common stock, are bought almost entirely by financial institutions. The most important of these are life insurance companies and pension funds, and even with these buyers the market is changing. Life insurance companies, which were the principal buyers of public utility bonds ten years ago, have turned away from these to a large extent. They can get higher yields and better amortization elsewhere. Also the growth in assets of the life insurance companies has leveled off in the last six or seven years, indicating again that fixed

dollar media have been losing favor as a means of savings.

Private pension funds have been turning more and more to common stocks. Today probably the largest single market for bonds, such as the public utilities sell, is the public employees' pension funds, and even some of these are turning into other fields. At the end of 1960, 44 per cent of the assets of private pension funds, valuing these assets at market prices, consisted of common stocks.

I am, therefore, inclined to feel that the market for fully taxable, non-convertible bonds in this country is not an expanding one and it may even be contracting. The only thing likely to improve this situation is restored faith in the future value of our dollar and this will take some doing. Based on its current attitude towards spending, our government has not yet put the maintenance of stable money value and the halting of inflation at the top of its list of priorities.

Investment Climate

WE have noted at some length the vital importance of the right kind of economic climate to encourage investment. Here are some further thoughts on this. We cannot differentiate between the types of investment which one might wish to treat well for some reason or other. For example, we cannot treat investment in public utilities poorly and expect to encourage other types of investment.

It has been my experience that where the public utilities are allowed to do rather well, other types of businesses, such as industrial companies, also do well,

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and are encouraged to come into an area. In fact, the treatment of public utilities in any area serves as a pretty good bellwether as to what other types of businesses may expect there.

HERE are some examples: About three years ago I was asked to testify in a rate case on behalf of a large utility in a certain Midwestern state before its public service commission. From that experience I barely escaped with my life, and when I crossed the border into Indiana I first kissed the soil of that state and then stopped at the first tavern and had a couple of good stiff drinks to soothe my jangled nerves. I certainly came away with the impression that the public utilities in that state were up against a pretty tough form of regulation. I also had a strong feeling that if that commission represented the official attitude there toward investment capital, then this is a pretty good state for capital to avoid. Apparently others feel the same way. It is well known that industry has left the state to which I refer to a considerable extent, and precious little new industry is coming in. Large pockets of unemployment there promise to be rather permanent.

Now contrast this situation with Texas. Texas has today little unemployment and her industry is building up at a rapid rate. It is also a well-known fact that the public utilities in Texas are permitted to do pretty well. To me, it is perfectly silly for a state to spend a lot of effort and money trying to attract new industry unless it is prepared to give existing industry, including its public utilities, a reasonable break.

Reasonable Utility Regulation

THE importance of public utility regulation, therefore, is not only great from the point of view of the utilities themselves and their customers and investors, but also from the point of view of the general economic well-being of the area.

What, then, constitutes reasonable public utility regulation? Bearing on this subject, there are five points that I would like to cover briefly.

1. If they are going to render the service that is expected of them, the public utilities are going to have to raise a very large amount of capital in the public markets in the years that are ahead. Most of this capital will be in the form of bonds and, in all probability, in the present decade such bond capital is going to cost a great deal more than it did in the last decade for the reasons which I have already enumerated. This is going to have to be reflected in the rate of return allowed. The utilities now enjoy



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the benefit of a very large amount of senior capital raised in the past at quite low interest rates, much lower than prevail at present and very much lower than are likely to prevail in the future. If 6 per cent was a fair rate of return when bond money cost $2\frac{3}{4}$ per cent to $3\frac{1}{4}$ per cent, then the proper rate of return in the future should be very much higher.

2. It should also be borne in mind that investment in the public utility industry involves risk. We cannot weigh the extent of this risk because we lack the gift of prophecy, but we know that such risk is there. The whole history of capital investment tells us this and the accelerating pace of economic change to which I have earlier referred increases this risk. I have sometimes heard it claimed that the utilities are a regulated industry and are, therefore, guaranteed a rate of return so that they are practically riskless. I wish that this were so. However, where is the public service commission which can make guaranties against economic obsolescence? The railroads are a regulated industry, too, and look at the shape some of them are in.

3. INTELLIGENT regulation of public utilities cannot ignore the fact that inflation has been a very powerful influence over the last twenty years, and, in the opinion of many thinking people, threatens to remain so. We see the cost of living index reaching new highs nearly every month. It is this inflationary trend which makes original cost as a basis of utility rate making obsolete and confiscatory. A dollar invested in utility property or any other kind of property in 1940 was not the same thing at all as

a dollar put in in 1961. The former dollar was over twice as large. Even a dollar put in in 1950 was much larger than a dollar put in today.

Original cost was conceived as a basis for rate making in a former period when deflation and not inflation was the central economic problem. As long as the dollar tended to maintain its value over a long period of time, it made a good deal of sense.

However, in view of what has happened to the dollar over the last twenty years, it makes no sense today. It confiscates over half of the investment in utility property which was put in prior to 1941 and a substantial fraction of the investment contributed since that time. Basically, original cost treats equity investments in utilities as though it were fixed dollar investment, which they are not. It treats common stock investment like a very junior preferred stock—a fixed dollar claim that is at the bottom of the heap. Those jurisdictions which cling to original cost in spite of all the evidence against it are poor areas for investment in utilities. We seek to avoid such areas in the purchase of public utility stocks.

INFLATION also has a direct bearing on the adequacy of depreciation. Utilities are allowed to charge depreciation sufficient only to amortize the dollar investment in property on their books. Utility property is, in general, very long life property and is so depreciated over a long period of time.

In an inflationary period such as we have been in, the depreciation allowed is not sufficient to reproduce that property at the end of its useful life. This simply

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means that some part of earnings in addition to depreciation must be used to maintain the property in being. This is just another way of stating that earnings under such conditions are overstated and that real earnings, after allowing for enough depreciation to reproduce property at the end of its life, are considerably less than stated earnings. Reasonable regulation should also take this into account.

4. I WOULD like to say a word about the cost-of-money approach to rate of return. As a mathematician, I find this theory abhorrent for this reason. You can figure the annual cost of bond and preferred stock capital because this is a fixed dollar cost. However, there is no such thing as cost of equity capital, although sometimes an attempt is made to pretend that there is. People simply do not buy common stocks to earn a fixed rate of return. This is clearly proved by the fact that in today's market you can get a much higher rate of return from

bonds, which are also a senior claim on earnings.

For example, on the new investments made by our company last year, we obtained an average return of $6\frac{1}{4}$ per cent on fully taxable bonds, 4.6 per cent on tax-exempt bonds, and only 3.6 per cent on common stocks. Quite obviously, we did not buy these stocks because of the immediate fixed return offered.

Back in 1949 you could buy a cross section of good utility stocks at eight or nine times current earnings per share. Today these same stocks sell at 22 times earnings. Now if there is such a thing as a cost of common stock capital, which is the right multiple to use? Eight times or 22 times or something in between? Obviously it boils down to a wild guessing game. At best the cost-of-money approach means regulation by the stock market, which is far too erratic a medium for this purpose.

Followed to its logical conclusion, it means that the more popular a stock becomes, the lower the rate of return

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which would be allowed on the equity capital, which is surely a self-defeating business.

What about the Consumer?

5. FINALLY, let us consider especially the consumer. Consumers are very fine people and deserve every consideration. All utility people will agree with this because they are consumers just as I am a consumer and obviously we are all very fine people. Therefore, we are all consumer-minded, just as I am sure practically all public service commissions are consumer-minded. However, I believe there is a real danger that we can become too consumer-minded to the exclusion of other important and vital considerations. You have all read the story about the ant and the cricket. The cricket was very consumer-minded, all through the summer at least, and look what happened to him when the going got rough.

In a more serious vein, we are in deadly competition with a type of economic system that is not consumer-minded at all. This system is ready to have its people subsist on bare minimums and starve, if necessary, in order that the required capital for rapid industrialization be sweated out of its meager standard of living. China recently has exported food to pay for capital imports while there was famine in the land. That is the nature of our competition, a system bent on achieving great strength through the submergence of the consumer, at least until that strength is achieved. And this system, whose consumers have a pretty thin

time of it, has been pushing us around a bit lately.

HISTORY is strewn with the bones of societies which have become very consumer-minded to the exclusion of other more important things. The Romans became very consumer-minded during the period of their decline and fall. By all means, let us treat the consumer well but let us also remember that the fundamental strength of our society is not based on consumption, but on our ability to encourage the accumulation and investment of capital.

Under our system the consumer has done very well indeed, far better than anywhere else. However, if we have reached a stage in our social thinking where profits, which is another term for return on capital, has become a dirty word, then our particular type of economic system is probably on the point of being washed up, and the consumer with it. Our Communist competition, which, in spite of the labels, is really very capital- and profit-minded, and obviously not consumer-minded, will likely prove too much for us in the race to build economic and industrial strength which results from the process of saving and investment. Therefore, let us by all means give the consumer fair treatment, but not at the expense of consuming the seed corn represented by reasonable profits. Any of you who have ridden on the New Haven Railroad recently will know what happens to the consumer when the earning power of a public service enterprise fades away. He gets a very rough ride indeed.

Is Regulation Keeping Up with The Times?

A look at the regulation of investor-owned utilities, from the viewpoint of a state official intimately associated with state regulatory policies and decisions.

By LLOYD G. HAMMEL*

THE subject, "Is Regulation Keeping Up with the Times?" is always of current interest. However, to evaluate regulation we must first have an appreciation of what is properly expected of it. It is only then that present-day problems can be assessed and decisions made as to what regulation needs to do to fulfill the statutory and public expectations.¹

In a country so militantly defensive of liberty, of the freedom of contract, and the control of one's individual property, so strongly devoted to the free play of a competitive market, and acceptance of the survival of the fittest without significant recriminations, the rationalizing of the justification for the extreme restrictions upon the conduct of certain selected businesses has been an agonizing one covering our history from shortly after the Civil War until the beginning of World War II. It has seen our United States Supreme Court periodically split



right down the middle by the rise and fall and reascendancy of these competing philosophies of governmental regulation.

ALL are familiar with the early common-law theory that businesses which held themselves out to serve the public were subject to the public control. A later basis for regulation was urged by Mr. Justice Field in his dissent in the early warehouseman case of *Munn v Illinois*² when he stated that where some right or privilege to engage in a particular business is conferred by the government there is an *implied contract* that the business does so subject to regulation. A modification of this concept is in the *constructive-grant* theory. Mr. Chief Justice Taft argued in 1923³ that when one devotes his property to a use in which the public has an interest he in effect grants the public an interest in that use and must submit to being controlled by the public for the common good. In the historic case of *Smyth v Ames*,⁴ Mr. Justice Harlan contended that a railroad was a public highway and none the less so be-

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cause it was constructed, owned, and operated by a corporation deriving its powers from the state but that it "performs a function of the state."

Mr. Justice Brandeis applied this concept to telephone companies in his Southwestern Bell Telephone opinion⁵ when he stated that the company was the "substitute" for the state in the performance of the public service. This latter concept is particularly unsatisfactory to those of us who refuse to accept the premise that the ownership or operation of railroads or telephone company services is in any sense a proper governmental function. However, it nevertheless cannot be ignored at least as long as it has such eloquent advocates as Commissioners McKeage and Mitchell of California.⁶

Regulation and the Police Power

PERHAPS the more recent, and most reasonable, defensible and justifiable basis for governmental regulation of utilities is founded in the broad, general scope of the police power of the state.⁷ Just as the freedom of speech is not absolute but rather is exercised subject to being held responsible for its abuse—so the freedom of contract and the use of one's property is subject to regulation to prevent abuse and the measure of the scope of this regulation is limited only by the relevancy and reasonableness of the means invoked to insure the public and those dependent upon the service from the abuses that historically have stemmed from the absence of such controls or which some contend might otherwise be obtained were a truly competitive service available.

It is perhaps upon this rationale that some have said that regulation is a sub-

stitute for competition. However, while this is a nice sounding rule of thumb it tends to misstate and oversimplify the public benefits of competition. Competition in private businesses has never *guaranteed* uniform nondiscriminatory prices or quality of product nor a high level of service.

COMPETITION has never *guaranteed* stability of enterprise or efficiency of operation. Just check the increasing number of bankruptcy filings in recent years if you have any doubt about this. Nor has competition necessarily acted to promote the development of those industries and services which are considered essential to an expanding economy, or to the national defense and security. All of these things must be considered today as proper and necessary purposes of utility and transportation regulation.

In short, the purposes of regulation are to preserve and promote those services which are indispensable to large segments of our population, to prevent excessive and discriminatory rates and inferior service where the nature of the facilities used in providing the service and the disparity in the relative bargaining power of a properly monopolistic utility and the ratepayer are such as to prevent the ratepayer from demanding a high level of service at a fair price without the assistance of governmental intervention on his behalf.

The Expanding Scope of Regulation

TO accomplish these objectives the scope of regulation, both with respect to the industries controlled and the activities subject to regulation, has experienced a continuing growth. Nearly

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all the activities of utility corporations are now under the supervision of regulatory commissions. While regulation began historically with the control of rates, with the goal of preventing discriminatory and exorbitant charges, it soon became apparent that control of rates was of little importance without the power to establish service standards. It was then found that the main objectives of regulation were jeopardized by activities which were beyond the reach of the regulatory authority.

Hence, regulation has been extended to accounting practices, operating budgets, the character and conditions of security issues, the propriety of affiliated interest relationships, the conditions of entry into the business and the necessity of capital extensions and improvements, and the circumstances under which mergers and acquisitions of securities or assets will be permitted. Only the more progressive commissions have been delegated authority over all of the activities enumerated, but all of these activities are common objects of regulation in a substantial number of states.

THIS paternalistic rôle of regulation must not be abused in such a manner as to deprive the utilities of that measure of profit which is needed to encourage investment, research, and continual development and improvement of services that is demanded for a growing population and an expanding economy. In short, I believe that we should approach our responsibilities with more emphasis upon that language in the Oregon statute⁸ as well as many others that charges us with the duty to protect the ratepayer from "unjust and unreasonable exactions and

practices" rather than to attempt to equate fair and reasonable rates with what the Supreme Court considered in the Hope Natural Gas Company case as the lowest constitutional level of rates beyond which is confiscation.

This brings me to a brief discussion of only three of the multitudinous problems that face those of us in the regulatory business.

Stock Options for Officers

FIRST is the matter of stock options as a form of compensation for utility officers. This gimmick in the Internal Revenue laws has been promoted as a proper means of providing additional compensation, as a fringe benefit for executives that promotes greater effort toward improving efficiency and operations, and as a necessary device to enable utilities to compete with unregulated industries for topflight management and technical personnel. It has never been satisfactorily explained to me why the straightforward approach of a stock purchase plan would not accomplish the purpose equally well.

Only in New York⁹ and Oregon¹⁰ has the stock option been declared illegal and there on the grounds that the issuance of securities can only be permitted for



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capital purposes and not for operating expenses. The last legislative session in Oregon expressly authorized the commissioner to approve stock options upon reasonable terms and when in the public interest.

THE facet of this problem that should concern us is the fact that the commissions, which have budgetary control over utilities and which must approve salaries for utility officials, effectively abdicate control over such compensation by approving stock options and encourage official speculation in company stocks. I do not wish my remarks to be misunderstood as being based upon any belief that utility salaries are too high. The fact is I do not know of an individual who is overpaid. I am objecting to the stock option as a device and on public interest grounds.

J. A. Livingston, in an article in the April 4, 1958, *Washington Post*, commented upon the maneuvers of the officials of Aluminum Company of America and the reissuance of stock options at a lower price in an effort to take advantage of the drop in Alcoa stock from \$120 to \$70. In November of 1959 this stock was back up to \$99. This same reporter very properly asked the question, "Did this profit come about because of any extra exertion on their part? Or is it derived from the turnabout in a stock market, of which they are the fortuitous beneficiaries?"

I have been told of an incident where a certain commission in the Northwest approved a stock option for an aging gas utility official. An increase in market price occurred as a result of the coming of natural gas, a profit was realized, and

then the official retired. This stock option certainly did not retain an experienced official for the utility.

The regulated industries should realize that the public does not forget and will long remember the machinations of the utility holding companies of a few decades ago when fortunes were made at public expense. I cannot help but believe that the stock option has in it the seeds of future public scandal. The public may only lift its eyebrows, and some Horatio Alger enthusiasts may actually cheer, when Mr. Romney pulls American Motors up by its bootstraps and makes a small fortune in the process, but let me assure you that there are those who would lift their voices mightily high were a public utility official to do the same.

This insistence of utility officials that they should be free to do what unregulated industries do has, for the reasons I have previously commented upon, absolutely no basis in the economic, political, or legal history of this country, and we who are charged with regulation have a responsibility to promote the stability of these industries and not to stand idly by while typical human motives of selfishness and greed expose them to potential ridicule and abuse. If stock options are to be permitted to exist, it should only be upon the severest type of conditions and restrictions.

Intrastate Telephone Separation

THE second point to which I would direct attention is that of separations between interstate and intrastate properties involving principally the Bell telephone system. A lot of time need not be devoted to this since it has probably enjoyed more attention within the National

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Association of Railroad and Utilities Commissioners within the last twenty years than most any other subject. Whether one uses the Charleston plan or the modified Phoenix plan, or attempts to weight the value of the use of interstate toll properties by some new method, the fact remains that there are pending technological improvements which will render the prevailing plans impossible of application if not obsolete in critical parts.

ONE of the elements which will bring about an illusive situation is that where we now have central office equipment which can be observed during its performance throughout the time when a call is being placed, in the future this will be transformed in an arrangement whereby through the development of full electronic switching such observation of operating components and the use made of such components will be impossible. The reason for this is that with greater compactness and the use of gaseous tubes which operate silently, no human being will be able to say at a given instant or hour *what portion* of the equipment is being used for an exchange call, an interstate toll call, or an intrastate toll call.

TRUE, it is anticipated that registers will be used showing the busy hours of the day or the number of calls which are placed, particularly with respect to direct distance dialing. However the composite cost of the equipment will represent a unit price, and when you have a number of different types of calls placed over such equipment, *who will be able to say what portion could be broken out and be adaptable in allocation to different categories between interstate and intrastate use?* This would be accentuated in the case where wide area telephone service is used both intrastate and interstate.

Finding a Dependable Method

THE Separations Manual prescribes a formula which is general. This requires companies and regulatory agencies to ascertain the *basic data* to which the formula will be applied. I am not here particularly concerned about what the Separations Manual prescribes. At best it attempts to furnish only a method. What we will be concerned about is determining how the basic figures and data, representing use and investment, can be developed to which the formula

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may be applied and the result therefrom can be made *dependable*.

Electronic switching will lend itself to greater flexibility in development of new types of service heretofore not even dreamed of by the public. We are living today in what some have called an Era of Speed. It particularly applied to the communication industry. Many of us have recently experienced the excitement of the test during operation Echo I. How are we going to apply existing separations procedures to plant, at a time when approximately twenty-five spheres are orbiting the earth and many of our communication channels will be reflected from such spheres? Who is going to assume the responsibility of allocating the cost of providing such service to any one state or interstate plant?

THE Federal Communications Commission has an express responsibility in this area which state commissions have been forced to assume. Perhaps with all its problems this has been our greatest area of interstate co-operation, but if we are to continue to keep up with the times we must renew our efforts to reach a solution in anticipation of these problems.

The third point to which I would urge that we give our immediate attention and best efforts is the growing demand for consumer counsel to represent the public before regulatory bodies.

A public defender to represent accused persons in criminal proceedings is quite widespread and they have existed in some communities for a number of years. Their justification is based upon the fact that court appointment of inexperienced counsel for indigent persons is unsatisfactory and that while the prosecuting officer has

a duty to see that justice is done, he is nevertheless the prosecutor.

However, I notice in recent days that some have found it popular to advocate a consumers' counsel to represent the buying public before regulatory bodies. A bill¹¹ has actually been introduced to create a consumers' department with a Cabinet-level secretary. President Kennedy has reportedly announced that he intends to appoint a consumer counsel right in the White House with authority to represent the interests of consumers in *all activities of government*.

This would be proliferation of bureaucracy at its worst. I know of no regulatory agency, whether it be the Federal Trade Commission, the ICC, the Department of Agriculture or Health, Education, and Welfare, the FCC, the Federal Power Commission or state regulatory bodies, that does not have a *primary* duty to protect the public. If we regulatory officials are not doing our job then we should be removed and replaced by persons who will.

Regulators Will Do Their Duty

IF regulatory people have become so independent of the appointing officials or so unresponsive to the voters as to need a Gestapo in the White House or any place else to remind them of their responsibilities, then regulation by commission is doomed. Then criticism which Dean Landis has described in terms of regulation that is controlled by the regulated is actually true and cannot be dismissed as political hot air.¹²

I do not know how others respond to this, but for myself I see no virtue in standing mute while others attempt to make a whipping boy out of commission

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regulation for the purposes of capitalizing upon politically attractive slogans.

The effect of this proposal, for example, would be to put the Federal Power Commission, which is responsible to the President, in the position of entertaining a protagonist on behalf of the ratepayer, also appointed by the President, at the same time that commission staff and counsel are offering evidence on the same subject. Are the sponsors of this proposal suggesting that rates are to be set to benefit the ratepayer regardless of utility costs? The natural development of such a situation would be to remove from the commission any responsibility to the rate-paying public and to convert the proceedings into a purely adversary or judicial rather than administrative hearing. If this is what is desired then it should be presented on its own merits and not as an implied insult or slander upon present regulatory officials.

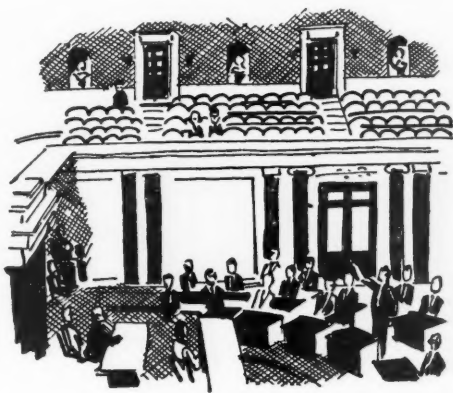
IN connection with this proposal I am reminded of an address by then Commissioner Alan Boyd, now chairman of the Civil Aeronautics Board, before the Public Utility Law Section of the American Bar Association in August of 1959 when he spoke upon the subject of "Inflation and Public Utility Regulation."¹⁸ He stated at one point: "It is not the function of regulation to educate the public." Many years ago when I first joined the staff of the attorney general I shared this view. Public information officers, to me, existed only as publicity agents for elected officials who were interested in remaining in office.

However, I have since changed my mind. While this may be their use in some instances they may also be used as

a proper means of informing the public about what is going on in government. I believe that regulators have a responsibility to keep the public informed as to not only the scope and extent of their authority but how it is being exercised.

Pressure on the Regulators

I WOULD propose that commissioners and staff members make themselves available to those groups which influence the formation of community opinion, such as the League of Women Voters, PTA's, chambers of commerce, including the Jaycees and others, not as Trojan horses for the regulated industries, but for the purpose of explaining the rate-setting and regulatory processes. I know it is popular to look upon rate fixing as a complicated business which only "we experts" can understand. However, I believe it is capable of being reduced to terms which *these groups at least* can understand. They should be reminded that regulatory commissions derive their powers from the legislature, which body also controls our budgets. When the public learns what the purposes of regulation are and what its limitations are, they will agree that more good can be efficiently



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obtained from improving existing regulatory agencies than from duplicating their efforts by equally underpaid engineers, accountants, analysts, and commissioners.

THE last point upon which I would like to comment is what I call an internal commission problem. This is the need for greater interstate co-operation.

Rate proceedings are pending before the Federal Power Commission which involve the price which our natural gas distribution companies will have to pay the pipeline companies for gas. While our distribution companies may be expected to be represented most vigorously in these proceedings, state commissions also have a very direct interest in them since any increase in pipeline prices must either be absorbed by distribution companies or passed on in an increase to the local rate-payers.

It is natural that the interests of the middle mountain states may be different from those of California and the southwestern states and also different from the Pacific Northwest. However, within these areas the states should get together, pool their personnel resources, and present the best prepared position possible.

Similarly in ICC proceedings, where we have a common or related interest, the public interest demands that we co-operate to the fullest. For example, there is presently pending the proposed merger of the Burlington, Northern Pacific and Great Northern railroads and the competing applications of Southern Pacific and the Santa Fe for control of the Western Pacific Railroad.

In each of these cases hearings will be conducted over long periods of time in

several states involving thousands of miles of trackage and millions of dollars of traffic. Very few if any of the state commissions or shipper associations have the money or staff to assign a team of qualified rate specialists, traffic men, and attorneys to spend almost their full time going from state to state to follow these proceedings through from beginning to end. Yet, if the individual effects on the separate communities, states, and the entire territory are to be presented, briefed, and argued as a coherent, persuasive, and unified position on the subject of public interest, it is up to the state commissions to do it.

The Era of Rail Mergers

IN reading the decisions of the ICC in this field one cannot help but be impressed by the atmosphere that seems to exist in favor of railroad consolidations.¹⁴ The direction and extent of development of railroads have long been recognized as the controlling factors in the economic development of any area. If the potentially detrimental effects on shippers that exist in these applications are not obviated by adequate, enforceable, and policed conditions, then regulation will have failed in its mission. I wish to emphasize that the conditions must be supervised, periodically checked, and policed and the ICC and state commissions should not wait for shipper complaint to prod them into action.

Some initial steps in the direction of this kind of interstate co-operation were taken recently at meetings of several state commissioners in San Francisco and Helena, Montana. I believe that we have a long way to go before realizing the full benefits of this kind of interstate co-operation before federal bodies, but it

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can come and I believe that the public interest demands that we exert our full efforts toward this goal. It is not a "New Frontier" but it is one of the Last Frontiers which we must explore if we are not to surrender unchallenged control over the destiny of the West to federal agencies.

Whether we can reach it under the existing statutes that govern our agencies or whether some kind of *interstate compact* is needed which would enable us to put our money in a pool for supporting various technicians, specialists, and attorneys on leave of absence from state commissions or hiring outside experts is a matter which only time and mutual confidence and co-operation will answer.

IN conclusion, if I may be permitted a personal reference, I would say that from my experience of approximately twelve years in a wide and fascinating variety of state and local government activities that no field of public service requires a higher degree of technical expertise, no more mature balancing of economic, financial, business, and political judgments than utility and transportation regulation. No other segment of government is so intimately involved with determining the future course of the Jet Age, the Atomic Energy Age, or the Satellite Age. The task of not only keeping abreast of the times but anticipating problems should be for all of us an exciting challenge.



Footnotes

¹ The opinions expressed herein are not necessarily those of the Oregon Public Utility Commissioner or of the Oregon Attorney General, and further that my own opinions are subject to change without notice.

² *Munn v Illinois* (1877) 94 US 113, 146-7, 24 L ed 77.

³ *Wolff Packing Co. v Court of Industrial Relations*, 262 US 522, 535, PUR1923D 746, 67 L ed 1103.

⁴ *Smyth v Ames* (1898) 169 US 466, 544, 42 L ed 819.

⁵ *Missouri ex rel. Southwestern Bell Teleph. Co. v Public Service Commission* (1922) 262 US 276, PUR1923C 193, 67 L ed 981.

⁶ McKeage, Public Utility Regulatory Law (1956); address by Commissioner Mitchell in August, 1958, before the Section of Public Utility Law of the ABA, Los Angeles, California, entitled "Some Aspects of Regulation in California," PUBLIC UTILITIES FORTNIGHTLY, November

6, 1958, Vol. 62, No. 10, p. 796.

⁷ *Nebbia v New York* (1934) 291 US 502, 2 PUR NS 337, 78 L ed 940.

⁸ Oregon Revised Statutes 756.040.

⁹ *Brooklyn Union Gas Co. v New York Pub. Service Commission* (NY App Div 1959) 187 NYS2d 207, 29 PUR3d 388, aff'd 202 NYS2d 322.

¹⁰ Opinions of the Attorney General #5126, dated December 20, 1960.

¹¹ Eighty-seventh Congress, SB 1866.

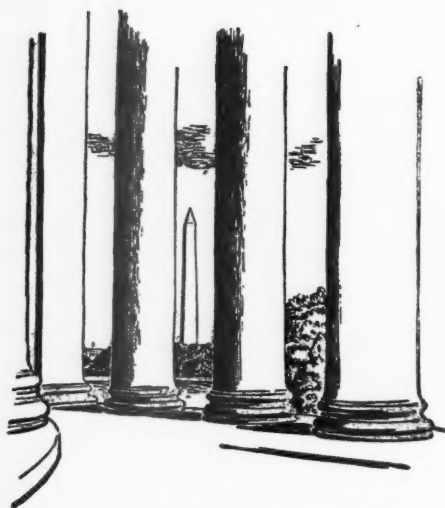
¹² Landis, Report on Regulatory Agencies to the President-Elect, December, 1960.

¹³ "Inflation and Public Utility Regulation," PUBLIC UTILITIES FORTNIGHTLY, September 24, 1959, Vol. 64, No. 7, p. 541.

¹⁴ *Spokane Internal Railway Co.* (1957) 295 ICC 425; *L & N Nashville, Chattanooga & St. Louis* (1957) 295 ICC 457; *Toledo, Peoria & Western R. R. Co.* (1957) 295 ICC 523; *Norfolk & Western Railway Co.* (1959) 307 ICC 401.

"It is our duty to take the discoveries in science from all over the world and translate them into new inventions, new processes, and new facilities which will keep the American standard of living ahead of all the world."

—HERBERT HOOVER,
Former President of the
United States.



Public, Private Power "Partnership" Buried

THE Eisenhower administration's policy of "partnership" between the federal government and investor-owned electric utilities has been officially discarded. The last spadeful was thrown on the grave this month by Interior Department Assistant Secretary Kenneth Holum.

Holum made the announcement in a talk before a western regional meeting of the National Rural Electric Co-operative Association at Sacramento, California.

The statement came as no surprise to Washington observers. Early in the Eisenhower administration, the President, and his first Interior Secretary, Douglas McKay of Oregon, initiated the partnership program. It was immediately attacked by Democrats and proponents of government power.

Under its provisions, electric utilities already operating in specific areas were to be responsible for the development of their own power needs, except where huge projects were considered too costly to be undertaken by investor-owned utilities, municipalities, or other organiza-

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tions. In the latter event, the federal government might step in as a partner, paying the costs of such things as navigation, flood control, and recreation benefits.

Due to government ownership politics, the policy had been effectively stymied during all of the Eisenhower administration and practical application of the system never did get a test. "Partnership," said Holum, "which proposes to sell falling water to profit utilities at federal projects, ceased to exist as national policy on January 20th of this year." That was the day of President Kennedy's inauguration.

THE Assistant Secretary also said the present administration's aim was a sound multipurpose development and management of resources. "We believe the nation's resources should be managed in the broad public interest, not for selfish, narrow advancement at the public's expense," he added.

Holum asserted that the federal government would lead a "sound and progressive" program of resource development and work hard for its adoption.

WASHINGTON AND THE UTILITIES

In the same vein, Interior Secretary Udall spoke on specific legislation the government is going to submit to the next session of Congress concerning resources development. Speaking at one of the several regional meetings designed to drum up support for the President's legislative program, Udall outlined a project to create planning commissions for major river basins under the supervision of a Cabinet-level water resources council. He envisioned, in this respect, possible cooperation between the federal government's public power interests and investor-owned utilities. Udall held out some promise of further consideration of negotiation for co-operative transmission of power supply. Commenting on reclamation and power development, the Secretary said the government is intent on using the energy from federally constructed hydroelectric plants "to the highest possible degree." Besides the interconnection of existing and authorized federal systems, he said, this left open the possibility of interties and co-ordinated operations with existing public and investor-owned utility systems.

SPEAKING at the Denver regional meeting, Udall said that water and other resource development "should not be a stop-and-go proposition." By the turn of the century, he pointed out, the United States will have a population of 300 million—nearly doubled in forty years. Without conservation, reclamation, and resources development, the population would strain the nation. For example, he stated, the country will have to double its water supply in the next twenty years.

The establishment of a Cabinet-level water resources planning council, as proposed by President Kennedy, would mark the first time the U. S. would have a vehicle for a nation-wide master plan for

the use, development, and conservation of water and other natural resources.

Problems for Air and Rail Carriers

THE country's transportation problems continued to interest Washington and the nation. Railroads and airlines continued to make news with further stories of impending financial disaster in the near future, and of attempts, mostly through mergers, of forestalling or preventing this.

Toward the end of November, Northeast Airlines told the Civil Aeronautics Board that it may have to file for bankruptcy and even suspend service. The airline said that Hughes Tool Company, which holds a good part of Northeast stock, had withdrawn financial support and the line's credit for fuel and oil would be cut off November 24th. Northeast said that unless the CAB immediately modified an earlier order questioning the legality of emergency aid from Hughes, its only alternatives to suspension of operation would be bankruptcy action or government subsidies.

Northeast admitted its operation was on a day-to-day basis. The CAB set November 29th as the date for a hearing on whether to grant "interim approval" to make emergency financial aid available. An air-line spokesman said the line may be able to muster enough funds to hold out until the hearing.

Last October 19th Hughes guaranteed Northeast payments to Shell Oil Company for fuel and oil, starting October 20th. On November 10th Hughes notified Northeast of the end of its guaranty and said further financial help could be provided only if the CAB should assure Hughes that it would not be penalized or that its interest would not be prejudiced.

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(In 1958 the CAB ordered Howard R. Hughes, controlling stockholder of the tool firm, to divest himself of control of Trans World Airlines and to refrain from acquiring control of any other airline without CAB approval.)

THE news of Northeast's plight came against a backdrop of further losses for the industry as a whole. The Air Transport Association announced a net loss of \$3.7 million for the nation's trunk airlines in September, compared with a profit of \$3.3 million in the same month last year. The airlines' deficit for the year to date reached \$17 million against a \$5.2 million profit for the first nine months of 1960.

In November the New York Central and Pennsylvania railroads announced they would resume merger talks broken off in January, 1959, by Central. If the two join hands it would result in a 21,700-mile rail system, the largest in the country, stretching from Philadelphia and New York city in the East to St. Louis and Chicago in the West.

Other major eastern railroads are not expected to oppose the consolidation since it will probably speed action on the two other large proposed rail mergers pending in the East. The big question mark is the attitude of the Justice Department which, as yet, has not decided on whether to intervene, but it has in other big merger cases before the Interstate Commerce Commission.

The ICC, which will probably receive the formal application for the Pennsy-Central merger before the end of the year, is expected to be sympathetic to the proposal. But whatever evolves it could be well into 1963 before final action by the ICC because of the agency's heavy backlog of merger pleas. More rail merger applications are pending at the ICC than

at any other time in its 75-year history.

NEITHER carrier expects sufficient fourth-quarter earnings to result in net profit for all 1961. Although both registered net income in September, the first nine months showed a net loss of \$12.7 million for the Pennsy and a record net loss of \$24.7 million for the Central.

The willingness of the two roads to resume merger talks and the favorable regulatory attitude of the ICC lead many railroaders to envision larger merger applications, especially in the East. For example, they see the Chesapeake & Ohio (which already has plans to incorporate the Baltimore & Ohio) some day also including the Western Maryland Railway, the Reading Railroad, and the Central Railroad Company of New Jersey. And the Norfolk & Western has already indicated it will hold merger talks later with the Erie-Lackawanna Railroad and the Pittsburgh & West Virginia Railroad.

Claim Interior Department Power Rates Too Low

THE Interior Department was accused in November by congressional auditors of selling electric power from three federal projects too cheaply. The General Accounting Office report to Congress said President Kennedy should direct Interior Secretary Udall to submit revised power rates for approval to the Federal Power Commission.

The FPC had rejected rates charged for power from three federal power projects in Kentucky and Tennessee in 1958. However, says GAO, Interior continued to sell power to the Tennessee Valley Authority at the disapproved rates. TVA buys power for an average of \$3.9 million annually. This figure is based on estimates by Interior that federal invest-

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ment in the projects totaled \$102 million. In a 1958 report the FPC said the rates should be higher. Estimates by the Army Corps of Engineers show the federal investment to be \$114 million—\$11.3 million more than the Interior Department had estimated.

The GAO said the Flood Control Act of 1944 provides that power rates should be sufficient to return the cost of the projects and must be approved by the FPC.

Moreover, GAO added, TVA should pay interest at the rate of 2.5 per cent, the rate used since 1945 on all other federal projects under Interior's jurisdiction. It said TVA buys the power under a 1948 agreement using a 2 per cent interest rate.

The Interior Department last June defended the rate schedules, pointing out that there were no objections from Congress.

Two Rulings of Utility Interest

Two decisions handed down in Washington last month, one by the Federal Trade Commission and another on a tax case, are of interest to the utility industry.

A Kentucky credit corporation, Consumers Credit Rural Electric Co-operative Corporation, set up by a group of rural electric co-ops to promote the wider use of electricity, lost its fight to be exempted from federal income taxes as a nonprofit organization.

The U. S. tax court ruled that the concern did, in fact, make profits and was subject to taxation despite the tax-exempt status of the co-ops that created it. It rejected the corporation's claim as a tax-exempt organization under state and federal laws to encourage rural electrification.

The court said the corporation had

handled more than \$2 million in loans to customers of the rural co-ops and that its income came from these customers, not from the tax-exempt member co-operatives which served as nothing more than "conduits" for the transactions. The court also ruled the corporation cannot deduct as interest the amounts paid to holders of its so-called debentures. The debentures were purchased by the member co-ops to finance loans.

The other decision saw the FTC throw out, for failure of proof, charges of its own staff that Rural Gas Service, Inc., of Westfield, Massachusetts, had entered into unlawful exclusive dealing contracts with the distributors of its liquefied petroleum gas, and enforced these contracts by unfair methods and discriminatory prices. The company, according to the FTC opinion by Commissioner Elman, has agreements with all distributors requiring them to buy all of their requirements of LP-gas from Rural Gas and prohibiting them from buying, selling, or using competitive LP-gas or service equipment.

HOLDING to the initial decision of its hearing examiner, the FTC said that "since respondent's total sales accounted for only 3 per cent of total industry sales in its market area, and since three-fifths of these sales were made directly to consumers and not through its distributors, the requisite effect on competition had not been shown." The examiner further held that the post-termination restrictions upon respondent's distributors were a reasonable protection of its investment in equipment loaned to consumers and of its relationship with these consumers and that these restrictions were lacking in substantial public interest and constituted "essentially a private controversy."



Telephone and Telegraph

Nine Nations Enter Communications Satellite Race

GREAT BRITAIN, France, Australia, Belgium, Denmark, Holland, Italy, Spain, and West Germany have formed a group to launch satellites into space for communications and scientific purposes. The total cost of the project is estimated to be \$200 million, with Great Britain contributing about one-third of the total. The satellite launch vehicle will be a three-stage rocket, the basic unit being a British "Blue Streak" which recently was abandoned as a military project. The second stage will be developed by France, and West Germany will produce the third stage. The nine-nation group expects to enter into a two-year period of research before test firing the rocket from the Woomera Range in Australia.

At the moment the Iron Curtain countries have not announced any plans to establish such a system. Should they do so a race in space could develop. It seems certain that the entry of the nine-nation group into the field of satellite communications is directed at preventing the United States from dominating the field. British Minister of Aviation, Peter Thorneycroft, has stated that the purpose of the organization is "to avoid a situation in which Europe is right out of

the launching of any satellites in the future." He further observed that the group "gives us the opportunity, which otherwise would be denied us, of taking some part in the commercial exploration of space. . . if we waited ten years we would not be in this field."

THE emergence of the international group could influence present administration policy toward the development of the American satellite program. At the present time U. S. efforts have become tangled due to fears that one of the ten United States international carriers may dominate the space communications field. Hearings were recently held before the Senate Small Business Subcommittee with Senator Long (Democrat, Louisiana) acting as chairman. Senator Long has been critical of the proposed joint private ownership setup which has been suggested and he stated that such a scheme would present serious "monopoly problems." Long declared that the industry proposal fails to "meet, or even attempt to meet, competition" and that the communications carriers which have advanced the proposal are not taking any risks if they put the cost of the project in their rate base and thereby write off the costs to their regular customers.

TELEPHONE AND TELEGRAPH

Chairman Minow of the Federal Communications Commission told the committee that a proposed commercial satellite network would serve as a vitally important alternative to ground communications, but that the commission was not yet ready to make a decision on an industry plan to launch such a privately owned system. The proposal, he noted, would have to be thoroughly examined to make sure "that the public interest will be fully served."

SENATOR Long questioned whether the American Telephone and Telegraph Company would dominate the proposed system and if the public interest would benefit through lower rates for telephone and other communication services. Chairman Minow agreed with Senator Long that complex questions of national policy and even national defense considerations would be involved in licensing any satellite system.

It was suggested by Senator Long that pressure might have been applied to keep some companies out of the field. However, Chairman Minow stated that the commission had "no evidence of or complaints about" such a situation. "We're still in the middle of the ball game," Minow stated, and he then went on to assure the committee that the FCC had not adopted or rejected the pending plan offered by AT&T and other international carriers.

The critical attitude of the subcommittee chairman was well known in advance and generally discounted. It remains to be seen if the new foreign group will prod the administration into changing its thinking on U. S. development of a space communications network. Should such a change take place it probably would evidence itself in some action by the Federal Communications Commission,

perhaps at the prompting of the White House.

THERE is growing concern that the tangle over ownership of the system could delay the actual launching. Recently the *Los Angeles Times*, in an editorial statement, summed up the present state of affairs, and the possible dangers of delay. In part the editorial stated:

Last July Mr. Kennedy announced that the administration favored private rather than government ownership and operation of U. S. participation in space communication. The President said the system should ultimately supply world-wide service, even where unprofitable, and include provision for foreign participation. He insisted upon "maximum possible competition" among U. S. participants.

The new space frontier had seldom looked brighter.

The government, said Mr. Kennedy, would co-operate by promoting research and development, arranging for satellite launching by U. S. rockets, conducting negotiations with other nations, and all other necessary official activities.

A committee composed of representatives of international communications carriers was immediately formed by the Federal Communications Commission to recommend plans for industry participation. The members proposed creation of a nonprofit corporation to develop, construct, operate, manage, and promote the use of communication satellites. Directors would represent the federal government and each participating company. Ground stations in the system would be owned by the companies, but regu-

latory and rate-making powers would remain with the FCC.

The proposal, however, has already come under attack from some members of the administration and Congress—and from members of the communication industry.

TESTIFYING before the Senate subcommittee, Lee Loevinger, Assistant Attorney General, stated that the industry committee's proposal for a space communications combine "is not adequate to meet standards." He did indicate, however, that the defects in the plan are "in the field of generalities and omissions." E. C. Welsh, executive secretary of the President's space council, stated that "no definitive administration position" could be taken until the space council finishes its study of the proposal. When this is completed he indicated that the council's evaluation would probably take the form of a recommendation to the President. Mr. Loevinger also indicated that final decisions on space communications will have to be made "at a Cabinet level."

Western Union Telegraph Company told the subcommittee that it would favor a commercial satellite system that would be owned by an independent corporation, shares of which would be sold to communications concerns, space equipment manufacturers, and the general public. S. M. Barr, testifying on behalf of Western Union, stated that his company believed that the industry proposal will fail to meet standards set by the President and the Justice Department.

The ownership question remains unsolved at this writing. Perhaps it will only be through a White House directive that the varying points of view can be resolved. Once this is done the actual

business of getting the satellites into orbit remains, and there still are numbers of technical problems to be resolved before a commercial system is put into operation.

Bell-General Dispute Indiana Tolls

THE Indiana commission is considering a dispute over the sharing of toll compensation between the Indiana Bell Telephone Company and General Telephone Company. Lawyers for Bell and General have presented their cases to the commission in an argument involving the division of long-distance toll profits between the two companies. The outcome of the proceeding will affect some 125 other telephone companies operating in the state. Smaller independent companies may automatically receive a larger share of their exchange long-distance business if the commission rules in favor of General. This might also force the smaller companies to remove some of their long-distance equipment from their rate base, thereby reducing profits.

It is General's contention that Indiana Bell has been receiving too large a share of earnings from long-distance calls originating in the territory of one company and completed in that of another. Indiana Bell is seeking an interim ruling of the commission to force General to pay it whatever amount the commission determines to be fair. General Telephone's representative contends that the commission had no power to "take arbitrarily from either utility." Indiana Bell's attorney maintains, however, that "since the Normans came to England, Anglo Saxon law has held that there is no wrong without a remedy."

Financial News and Comment

By OWEN ELY



Technological Utility Developments Promise Future Gains

WHILE there has been no big "break-through" in technology for the electric and gas utilities, there are a number of engineering developments which seem promising in the continued struggle to offset inflation with new efficiencies. They also help to explain why many utility stocks are so popular marketwise in spite of the drab regulatory outlook for gas pipelines and producers, and the threat of public power which overhangs some of the electric utilities.

COAL BY PIPELINE. An interesting new development is the proposed building of pipelines to carry a slurry of coal and water (about 60 per cent coal and 40 per cent water) from

mines to utility generating plants. This is considered much cheaper than shipping coal by rail. When the slurry is placed in regular storage tanks some of the water drains off leaving a 70-30 mixture. This cannot easily be burned in most types of furnace, hence expensive dewatering and drying equipment have been required to get rid of most of the water. Cleveland Electric Illuminating has used about 5 million tons of coal in this manner for over four years, transported as slurry in a 108-mile pipeline from Cadiz to Cleveland.

Now Babcock & Wilcox have demonstrated at South Amboy, New Jersey, that their "Cyclone" furnace used at the plant of Jersey Central Power & Light (General Public Utilities subsidiary) can burn this slurry efficiently. After being forced into the furnace at low pressure, the slurry encounters circulating hot air at a temperature of 700 degrees Fahrenheit which vaporizes the water and causes ignition of the finer coal particles, with the residue passing off in slag. It is estimated that use of this method will eliminate about 5 to 7 per cent of the capital investment in a power plant; heretofore needed for installation of coal grinding and crushing equipment, storage facilities, etc. Texas Eastern Transmis-

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sion and Consolidation Coal Company have worked with Babcock & Wilcox on this project, and over two years ago proposed construction of a 24-inch pipeline to serve eastern utilities. The new demonstration may be expected to stimulate fresh interest in this proposal.

PUMPED-STORAGE HYDRO POWER is gaining increased attention as a practical means of using big, new steam-generating units on a 24-hour basis. During late night hours when the need for electricity is at low ebb, the generator is used to pump water uphill into a reservoir; during the day this water runs back downhill to generate new power. The electric utilities can thus accomplish much the same result as the gas utilities do with gas storage.

A principal reason for the sudden popularity of pumped storage, according to *The New York Times*, is the evolution of reversible turbines—in the past separate machinery had to be provided for pumping water uphill and also for generating power on the down cycle. Pumped storage is said to be only about two-thirds efficient—there is a loss of about one-third of the original power—but nevertheless, with the increasing trend toward huge base-load generating units, the new method is considered economically worth while.

Europe already has pumped-storage plants with a capacity of about 3 million horsepower. Projects in this country total only 144,000 horsepower thus far, but an additional 2,230,000 horsepower is said to be under consideration or planned. Union Electric's Taim Sauk project was described in this department some time ago. Consumers Power now plans a 150,000-kilowatt project, using Lake Michigan for its lower reservoir, with an upper reservoir to be con-

structed in sand-dune bluffs about 300 feet above the lake level.

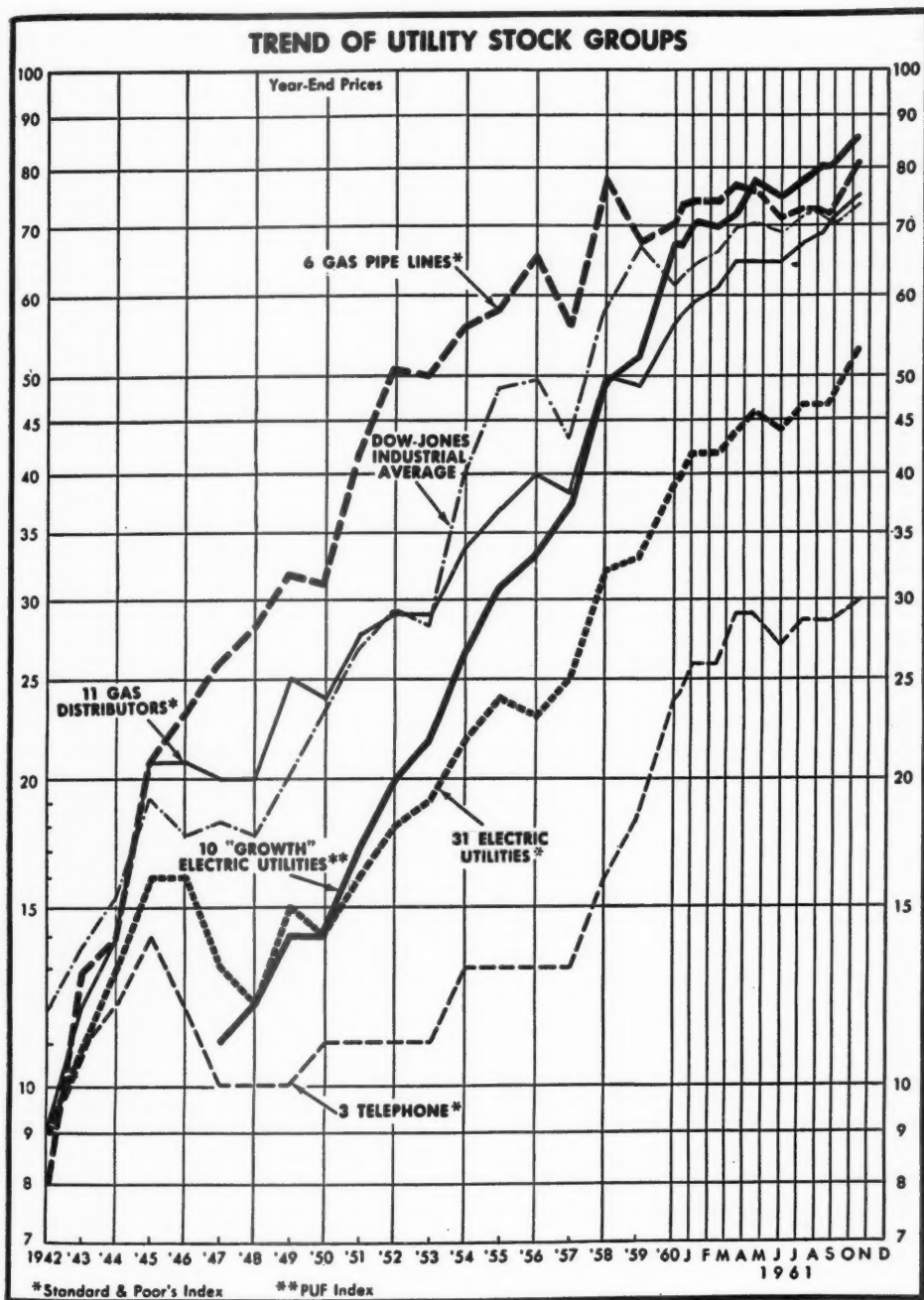
The federal government is also reported interested in reservoir projects in connection with public power and irrigation, and the U. S. Corps of Engineers is evaluating pumped-storage possibilities in electrical projects under their jurisdiction; it has already been used at the Flatiron unit of the Colorado-Big Thompson project.

Appalachian Power (American Electric Power System) has a 400,000-kilowatt pumped-storage project at Smith Mountain on the Roanoke river in Virginia scheduled for operation in 1962. Total cost of the project in 1958 was estimated at \$45 million.

In England the English Electric Company has developed new pumps which will push water up 1,200 feet; they will be used to pump water from Loch Awe to an upper reservoir, with 400,000-kilowatt generation.

COMPUTERS AS LOAD DISPATCHERS. The electric utilities are probably benefiting as much as any industry from the use of computers. Middle South Utilities' "Little Gypsy" generating station was the first to go almost completely automatic through use of a computer. Now Philadelphia Electric has introduced another innovation—a digital computer with a wonderful memory which decides what generating units in the system can supply power most economically at any given time and then tells them what share of the company's total power requirements to supply. It can solve intricate mathematical equations in the wink of an eye, according to the company's recent interim report to stockholders, determining the relative efficiency of each unit and automatically adjusting the output of each.

TREND OF UTILITY STOCK GROUPS



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NEW MAGNET MAY AID FUSION. In the research efforts to develop production of electricity by fusion, where magnetic fields are of vital importance to control the writhing plasma at a temperature of several million degrees, a big new step forward is reported. A tiny electromagnet has been developed by a Westinghouse team which uses almost no electricity itself, but is powerful enough to push the turbines of a hydroelectric plant. It is only a thin wire coiled like a doughnut and weighing one pound, and can run on an ordinary auto battery, but it creates a magnetic field twice as strong as conventional electromagnets weighing 20 tons and using 100 kilowatts. However, it is necessary to keep the wire intensely cold by placing it in liquid helium. Progress is also reported in other phases of the fusion problem, but no real breakthrough as yet.

HYDRO POWER FROM GLACIERS? The electric power industry is experimenting with many unusual methods of generating power—atomic fission and fusion, harnessing the tides, solar energy, wind power, escaping steam from the earth's interior, etc. Now a novel idea is sponsored by Thomas Price, supervisor of power resources in the state of Washington, to harness glaciers to produce hydro power in drought years. That state has 90 per cent of all our glaciers, excluding Alaska. Coal dust or other dark powderlike substances will be spread over part of the glacier to encourage melting, and other ideas will be tested, according to *Business Week*.

THERMOELECTRIC DEVICES. While the development of a successful thermoelectric device would seem to concern primarily the electric utilities, it is the natural gas industry which seems more

interested in it. The obvious purpose is to produce a small amount of electricity locally by burning gas, thus eliminating the need for regular electric service to operate certain appliances, such as the fans in a gas-heating furnace, etc.

General Instrument Corporation recently announced the development of a metal called Generalock which it claims will "take thermoelectric power plants out of their present 'hand-built-laboratory-conditions' stage and into a new era of low-cost assembly-line production." The company is hopeful of developing mass-produced small thermoelectric power generators for use in space satellites, pleasure boats, etc. However, even though the cost of the device has been reduced from \$50 to \$1,000 per watt to a projected \$10, it would still be a very expensive source of electricity as compared with conventional steam-generating plants. The projected future cost of \$10,000 per kilowatt would still compare with \$150 or less for a steam power plant, though of course the cost of transmission and distribution would be saved.

Generalock is said to bond metals in so tight an "atomic lock" that this eliminates the loss of power at the junction, formerly a major handicap. The new device is said to be light, compact, noiseless, with no moving parts, and running on varied fuels ranging from propane gas to radioactive isotopes.

A DAY after the announcement by General Instrument, Radio Corporation made a similar news release. Dr. James Hillier of the company's Princeton Laboratory reported that a new alloy of germanium and silicone (used in sandwich form with other materials) was a "major discovery that broadens the pattern of efficient thermoelectric power for general application." The new alloy

FINANCIAL NEWS AND COMMENT

sandwich (a foot-square plate arrangement) will convert heat over a range from room temperatures to 1,800 degrees into electricity, and at high temperatures can produce as much as 10 kilowatts or about three times the electricity used in the average home. Efficiency was estimated at 15 per cent which compares with about 20 per cent for the gasoline engine and about 30-40 per cent for steam-generating plants. RCA said its new material will last longer, is stronger, and can withstand higher temperatures than other known thermoelectric materials. However, no cost figures were released.

Practical applications are already being made. Several months ago it was announced that 500 thermoelectric freezers produced by Borg-Warner would be installed in a new Chicago hotel. Costing around \$200 apiece, they will make a tray of ice cubes in several hours. Thermoelectric devices are naturally of considerable interest in the burgeoning field of space exploration since they have no moving parts and are relatively trouble-free; Westinghouse and Carrier have produced a variety of small generators for the Defense Department.

AN attractive little pamphlet just released by the AGA, entitled "Miracles for Modern Living with Gas," says "A small 'black box' using natural gas as chemical fuel may provide the home of 1971 with all the electric power needed to run radio and TV sets, light, and motor-driven appliances. And, laboratory scientists are at work on revolutionary gas ranges and other appliances that will serve the busy housewife's every need automatically. . . . Present progress in the development of gas turbines, the fuel cell, and thermionic engines could well mean that gas will provide the electricity

needed in the 1971 home. Even the outdoor swimming pool could be used in winter with gas-heated water, wind deflectors, and infrared gas heaters."

GAS TURBINE GENERATORS. The gas industry also appears jubilant over its ability to produce fairly large amounts of electricity "on its own," using the newly developed gas turbine to produce high-frequency current. At Little Rock, Arkansas, Arkansas Louisiana Gas has set up a 60-cycle turbine to service a shopping center, eliminating the need of any service from the electric utility.

The new turbine is considered a big advance over the old reciprocating engines using diesel fuel or kerosene, which are not considered economic because of high-cost maintenance, etc. The use of new jet engines similar to turboprop aircraft engines can produce both electricity and heat and also run absorption-type air-conditioning units, it is said. However, the 900-kilowatt generator at Little Rock is apparently the only unit thus far in operation. While the unit costs about \$178 per kilowatt (including stand-by equipment consisting of two small reciprocating engines), it is reported to be producing a sufficient profit to amortize the equipment cost in several years, after which rates could be sharply reduced. (The editor raises a query: When can the turbines be made at a cost and size to permit their use in homes?)

ELECTRIC engineers are critical of the gas turbine, contending that a lot of maintenance problems will be encountered. However, a number of gas companies in various parts of the country are reported interested. Northern Illinois Natural Gas will use the turbine in its new office building, where it can "work the bugs out" before offering the device to cus-

PUBLIC UTILITIES FORTNIGHTLY

tomers. United Gas has assigned six of its top engineers to this field, and is installing gas generators at a lumber mill, a motel, and an ironworks.

Several gas companies are trying to sell schools on the new plants because of the combination facilities for electricity, heating, and air conditioning. Pacific Lighting Corporation reports substantial interest in California in the use of gas-fired turbines for large buildings.

FUEL CELLS. Both the electric and gas industries are working on fuel cells. The gas industry visualized it as another device to help develop an all-gas home. Texas Gas Transmission, in the fall issue of *Mcf*, devotes two pages to discussion of the fuel cell. New developments in the field of catalysts and progress with thermoelectric units are considered hopeful, and the AGA "Par Research" program includes work on methane fuel cells.

Recently, the Navy was reported planning to test a new fuel cell which would use selected strains of bacteria to promote the flow of electricity in small amounts. The principal advantage is said to be possible use of sugar, potatoes, sawdust, algae, and even raw sewage as fuels for the bacteria to work on. Several companies are reported experimenting along these lines.

Radioisotopes are also being developed for satellites and space vehicles, for use in the antarctic, etc.; the heat of atomic decay powers a thermoelectric generator. The Navy's navigation satellite "Transit," which beams radio signals to ships at sea as a guide to navigation, uses radioactive plutonium (which cannot explode as it will not sustain a chain reaction) to produce about three watts per hour; the batteries are expected to last five years.

The AEC has recently issued a 13-page Bulletin TID-12711 on "Possible Requirements for Radioisotopes as Power Sources." Thus far this technology relates only to small amounts of power (less than one kilowatt) for use in satellites, weather stations, ship-warning devices, undersea cable repeaters, etc.

FROZEN GAS. Progress with the development of frozen gas was described in the November 17th issue of *Time*. For several years a specially designed methane tanker has been successfully hauling liquid gas from Lake Charles to London, England, cutting the price of gas nearly in half.

The British government is now willing to spend \$50 million on bigger facilities, but the U. S. will lose the business; Conch International Methane will bring gas from French wells in the Sahara, with the objective of supplying one-eighth of Britain's gas needs within three years. Conch is also dickering for frozen gas customers in Switzerland, Germany, and Italy.

In the U. S., Brooklyn Union Gas and other East coast gas distributors are studying the development of storage facilities for liquid methane, as a possible substitute for the storage of natural gas by their pipeline suppliers in Pennsylvania. Southern California utilities are also said to be interested.

ANOTHER new storage method is the construction of huge man-made underground caverns to store liquid propane. Cincinnati Gas & Electric now operates two such caverns at Cincinnati and in Kentucky. A similar one is planned at Baltimore.

The new caverns are virtually bomb-proof, being 300-400 feet underground.

FINANCIAL NEWS AND COMMENT

Commonwealth Edison Replacing Preferred Stock With Debentures

IN the July 6th issue of this department, the new trend toward issuing debentures in place of preferred stock, with resulting saving of about half the fixed charge due to tax savings, was discussed. Commonwealth Edison has now joined American Electric Power and General Public Utilities in favoring such a move.

Commonwealth has decided to issue \$40 million sinking-fund debentures to

replace a preferred stock issue of the same size paying a 4.54 per cent dividend.

THE debentures will mature in fifty years, according to Harold R. Bunce of the New York *World-Telegram*, but the operation of the sinking fund will reduce the average life of the issue to about twenty-six years. The tax savings will be more than adequate to meet the sinking-fund requirements. While Commonwealth will have to pay \$106.50 to redeem the preferred stock, the premium of \$6.50 will be a tax deduction.



FINANCIAL DATA ON GAS UTILITY STOCKS

Approx. Rev. (\$Mill.)		11/13/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	Per Cent In Share Re- cent	Per Cent Increase Earnings 5-yr. Avg.	Price- Earnings Ratio	Div. Common Pay- out	Approx. Common Stock Equity
Pipelines and Integrated Gas Systems										
\$ 7	O Ala. Tenn. Nat. Gas	28	\$1.20	4.3%	\$1.61Se	4%	7%	17.3	75%	42%
240	S American Nat. Gas	44	1.20	2.7	2.18Se	11	7	20.2	55	38
114	A Ark. Louisiana Gas	41	1.00	2.4	1.55Ma	D12	27	26.4	65	45
65	O Col. Interstate Gas	45	1.25	2.8	1.98Je	12	13	22.7	63	27
517	S Columbia Gas System ...	29	1.10	3.8	1.58Se	7	8	18.4	70	40
23	O Commonwealth N. G. ..	33	1.10	3.3	1.82Je	3	6	18.1	60	55
363	S Consol. Nat. Gas	62	2.30	3.7	2.79Se	D23	2	22.2	82	63
505	S El Paso Nat. Gas	27	1.30	4.8	1.46De	10	4	18.5	89	21
59	S Equitable Gas	47	1.85	3.9	2.17Se	D12	3	21.7	85	45
47	O Houston N. G.	34	.80	2.3	1.57Jy	D15	12	21.9	52	26
25	O Kansas Nebr. Nat. Gas .	39	1.19e	3.1	1.82Je	D2	10	21.4	65	39
131	S Lone Star Gas	29	1.00	3.4	1.12Se	2	2	25.8	89	52
85	S Miss. River Fuel	38	1.60	4.2	2.25Ma	D13	3	16.9	71	52
32	S Montana Dakota Util. ..	36	1.20	3.3	1.97Je	D10	6	18.3	61	31
33	S Mountain Fuel Supply ..	40	1.40	3.5	1.93Se	5	5	20.7	73	49
113	S National Fuel Gas	31	1.20	3.9	1.72Se	D5	4	18.0	70	54
191	S Northern Nat. Gas	45	1.50	3.3	2.26Se	2	5	20.0	66	33
63	S Oklahoma Nat. Gas	40	1.40	3.5	2.11Au	D2	5	19.0	66	36
140	S Panhandle East. P. L. ..	54	2.00	3.7	3.05De	D9	4	17.7	66	43
239	S Peoples G. L. & Coke ..	52	1.50	2.9	2.24Se	1	9	23.2	67	42
35	O Pioneer Nat. Gas	33	.96	2.9	1.25De	D10	6	26.4	77	40
143	S Southern Nat. Gas	47	2.00	4.3	2.63Se	24	—	17.9	76	36
55	O Southern Union Gas ...	32	1.12	3.5	2.01Je	D1	4	15.9	56	30
555	S Tenn. Gas Trans.	25	1.12	4.5	1.39Se	7	12	18.0	80	28
9	O Tenn. Nat. Gas Lines ..	14	.60	4.4	1.10Je	D5	12	12.7	55	42
317	S Texas East. Trans.	17	.80	4.7	1.03Je	11	—	16.5	78	11
133	S Texas Gas Trans.	40	1.50	3.8	2.41Se	D6	10	16.6	62	26
171	O Transcont. Gas P. L. ...	24	1.00	4.2	1.34Se	19	6	17.9	75	21
389	S United Gas Corp.	39	1.50	3.8	2.38My	5	2	16.4	63	42
Averages				3.6%	— 8% 19.5 70%					

PUBLIC UTILITIES FORTNIGHTLY

Approx. Rev. (Mill.)	(Continued)	11/13/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	Per Cent In Share Re- cent	Per Cent Increase 5-yr. Avg.	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
<i>Retail Distributors</i>										
40 S	Alabama Gas	41	\$1.70	4.1%	\$2.36Se	D4%	—	17.4	72%	33%
68 O	Atlanta Gas Light	28	1.00	3.6	1.55Je	D7	9%	18.0	65	44
3 O	Berkshire Gas	23	1.00	4.3	1.54Je	28	5	13.9	65	42
8 A	Bridgeport Gas	34	1.68	4.9	2.22Ma	17	—	15.3	76	54
7 O	Brockton-Taunton Gas ..	28	1.06	3.8	1.54F	20	14	18.2	69	41
96 S	Brooklyn Union Gas ..	40	1.20c	3.0	*1.77Je	—	* 5	*22.6	68	43
15 O	Cent. Indiana Gas	19	.80	4.2	.88Au	D4	—	21.6	91	58
7 O	Chattanooga Gas	6	.30	5.0	.34My	D23	5	17.6	89	54
18 O	Elizabethtown Cons. Gas.	76	1.80	2.4	3.41De	17	9	22.3	52	79
77 O	Gas Service	43	1.72	4.0	2.36Au	D14	8	18.2	73	35
9 O	Hartford Gas	59	2.40	4.1	3.34Je	10	8	17.5	72	53
3 O	Haverhill Gas	33	1.60	4.8	2.21Je	11	7	14.9	72	55
23 O	Indiana Gas & Water ...	31	1.00	3.2	1.54Au	D4	—	20.1	65	44
62 S	Laclede Gas	33	1.05	3.2	1.60Je	D2	5	20.6	66	38
9 A	Louisiana Gas Service ..	23	.68	2.9	1.10Je	D13	—	20.9	62	48
8 O	Mich. Gas Utilities	18	.60	3.3	.50Se	D58	8	36.0	120	32
56 O	Minneapolis Gas	40	1.60	4.0	1.64Je	D28	5	24.4	97	45
20 O	Miss. Valley Gas	28	1.20	4.3	1.60Se	D17	—	17.5	75	40
7 O	Mobile Gas Service	27	1.10	4.1	1.55Au	10	—	17.4	71	40
8 O	New Haven Gas	43	2.00	4.8	2.94De	D9	5	14.6	68	69
18 O	New Jersey Nat. Gas ..	41	1.00f	4.4	*1.77Je	*12	*11	*23.2	56	34
130 O	Nor. Illinois Gas	62	1.40	2.3	2.18Se	5	11	28.4	64	32
11 O	North Penn Gas	14	.65	4.6	.99Se	D14	7	14.1	66	65
23 O	Northwest Nat. Gas	35	.92	2.6	*1.56Se	*D1	* 7	*22.4	59	34
364 S	Pacific Lighting	62	2.40	3.9	3.10Je	D2	5	20.0	77	39
15 O	Piedmont Nat. Gas	18	.50	2.8	.93Je	11	—	19.4	54	23
2 O	Portland Gas Light	22	—	—	.58Je	D67	4	—	—	29
12 A	Providence Gas	14	.56	4.0	.79Au	44	2	17.7	71	48
4 A	Rio Grande Valley Gas ..	7	.16	2.3	.37Je	23	7	18.9	43	46
6 O	So. Atlantic Gas	20	.90	4.5	1.35Je	55	8	14.8	67	30
18 S	So. Jersey Gas	48	1.20	2.5	1.54Se	8	14	31.2	78	53
38 S	United Gas Improvement.	71	2.40	3.4	3.69Se	11	10	19.2	65	50
71 S	Washington Gas Light ..	83	2.64	3.2	4.15Se	9	5	20.0	64	38
20 O	Washington Nat. Gas ..	33	1.00	3.0	1.46Je	D10	14	22.6	68	37
13 O	Western Ky. Gas	29	.80x	2.8	1.40Je	D19	11	20.7	57	36
60 O	Western Power & Gas ..	33	1.00	3.0	1.52Se	—	8	21.7	66	17
Averages				3.6%	—	—	6%	20.0	70%	



FINANCIAL DATA ON TELEPHONE, WATER, AND TRANSIT STOCKS

Approx. Rev. (Mill.)		11/13/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	Per Cent In Share Re- cent	Per Cent Increase 5-yr. Avg.	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
<i>Communications</i>										
\$7,920 S	Amer. T. & T. (Cons.) ..	129	\$3.60	2.8%	†\$5.49Au	1%	5%	†23.5	66%	64%
405 A	Bell Tel. of Canada	55	2.20	4.0	2.51De	5	—	21.9	88	58
54 O	Cin. & Sub. Bell Tel. ..	107	4.50	4.2	5.89De	6	2	18.2	76	77
317 A	Mountain Sts. T. & T. ..	32	.90	2.8	†1.31Au	D1	3	†24.4	70	74
405 A	New England T. & T. ..	49	1.90	3.9	2.31Se	D1	7	21.2	82	56
1,135 S	Pacific T. & T.	40	1.14	2.8	†1.43Au	D4	3	†28.0	80	61
136 O	So. New Eng. Tel.	56	2.20	3.9	2.61De	4	6	21.5	84	66
Averages				3.5%	—	1%	4%	22.7	78%	
<i>Independents</i>										
4 O	Anglo-Canadian Tel. ...	46	\$1.20	2.6%	\$2.48Je	D6%	15%	18.5	48%	49%
59 O	British Col. Tel.	49	2.20	4.5	2.97Se	D2	—	16.5	74	27
4 O	Calif. Inter. Tel.	28	.70	2.5	1.61Se	6	NC	17.4	43	24

FINANCIAL NEWS AND COMMENT

Approx. Rev. (Mill.)	(Continued)	11/13/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	Per Cent Increase In Share Re- cent	Earnings 5-yr. Avg.	Price- Earnings Ratio	Div. Pay- out	Approx. Common Stock Equity
28	O Calif. Water & Tel. ...	48	1.36	2.8	2.43Se	26	5	19.8	56	44
25	O Central Telephone	36	.88	2.4	1.62Je	1	4	22.2	54	34
6	O Commonwealth Tel.	28	1.00	3.6	1.64Je	NA	8	17.1	64	35
6	O Florida Tel.	33	1.00	3.0	1.33Ma	2	8	24.8	75	38
1,174	S General Tel. & Elec.	25	.76	3.0	†.98Je	D2	3	†25.5	77	42
27	O Hawaiian Telephone	24	.54	2.3	†.83Se	17	1	†29.3	66	39
10	O Inter-Mountain Tel. ...	21	.80	3.8	.92De	19	—	22.8	87	54
11	A Puerto Rico Tel.	79	1.80	2.3	3.31De	71	15	23.9	54	44
28	S Rochester Tel.	31	1.10	3.5	1.59Je	7	1	19.5	69	31
5	O Southeastern Tel.	32	1.00	3.1	1.30Ma	9	2	24.6	77	39
14	O Southwestern St. Tel. ..	37	1.28	3.5	1.73Se	1	5	21.4	74	39
14	O Tel. Service of Ohio	29	.36z	1.2	1.29Je	D1	9	22.5	28	34
47	O United Utilities	32	.80	2.5	1.30Jy	15	7	24.6	61	39
22	O West Coast Tel.	41	1.36	3.3	2.00Se	3	5	20.5	68	40
277	S Western Union	41	1.40	3.4	1.80De	D31	—	22.8	82	82
Averages				3.0%		10%	5%	21.9	65%	
Water Companies										
Holding Companies										
51	S American Water Works .	25	\$1.00	4.0%	\$1.49Se	D23%	9%	16.7	67%	19%
Operating Companies										
6	O Bridgeport Hydraulic ...	45	\$2.00	4.4%	\$2.35De	26%	3%	19.1	86%	54%
17	O Calif. Water Service ...	30	1.20	4.0	1.57Se	—	2	19.1	76	31
7	O Elizabethtown Water ...	29	1.40	4.8	1.46De	D16	—	19.9	96	64
13	S Hackensack Water	63	2.40	3.8	*4.05De	*D7	*2	*15.6	59	34
10	O Indianapolis Water	28	1.20	4.3	1.60Se	D6	1	17.5	75	32
6	O Jamaica Water	48	2.20	4.6	2.85Se	D8	1	16.8	77	29
6	O New Haven Water	72	3.40	4.7	3.49De	20	1	20.6	97	55
3	O Ohio Water Service ...	34	1.50b	4.4	1.69Se	3	—	20.0	89	32
13	O Penn. Gas & Water	38	1.40	3.7	1.89Je	6	6	20.1	74	33
12	O Phila. & Sub. Water ...	35	.85v	2.4	1.59Se	D2	8	22.0	54	30
11	O South. Calif. Water	38	1.10	2.9	1.61Je	16	5	23.6	68	28
4	O Southern Gas & Water ..	28	1.00	3.6	1.58Je	2	5	17.7	63	19
Averages				3.9%		3%	3%	19.3	76%	
Transit Companies										
21	O Baltimore Transit	9	\$.50d	5.6%	\$.52De	D50%	—	17.3	96%	49%
11	O Cincinnati Transit	8	.40	5.0	.55De	D40	10%	14.5	73	55
68	S Fifth Ave. Lines	19	t	—	1.07De	—	—	17.8	—	65
323	S Greyhound Corp.	26	1.10a	4.2	1.64De	—	10	15.9	67	70
38	S Nat. City Lines	20	1.20	6.0	1.73De	D22	—	11.6	70	94
13	O Niagara Frontier Trans. .	15	.80	5.3	2.13De	19%	8	7.0	38	75
20	A Pittsburgh Rys.	14	.30	2.1	—	—	—	—	—	90
6	O Rochester Transit	6	.40	6.7	.87De	D20	—	6.9	46	100
20	O St. Louis P. S. "A"	10	.80	8.0	.53De	D31	—	18.8	151	94
13	S Twin City R. T.	14	1.00	7.1	1.26De	—	—	11.1	87	65
20	O United Transit	6	.70	11.7	.63De	D28	—	9.5	111	53
Averages				6.2%		—	3%	13.0	82%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. *Deferred taxes resulting from liberalized depreciation are not normalized. If normalized, the price-earnings ratio would be higher, and the rate of increase in share earnings would be smaller. NA—Not available. †On average shares. D—Decrease. a—Also 10 per cent stock dividend October 24, 1960. b—Also 2 per cent stock dividend September 30, 1960. c—Also 10 per cent stock dividend to be paid October 9, 1961. d—Fifty cents paid thus far in 1961, payments irregular. e—Also 10 per cent stock dividend to be paid December 20, 1961. f—Regular annual 2 per cent stock dividend included in yield. r—Three per cent stock dividend January 16, 1961. t—Payments irregular, \$1 paid in 1960, 50 cents thus far in 1961. v—Also 3 per cent stock dividend payable January 6, 1961 (similar dividend was paid January 7, 1960). x—Also 12½ per cent stock dividend payable October 7, 1960. z—Plus 3 per cent stock dividend December 31, 1960. NC—Not comparable.



What Others Think

Railroads in New England

WITH the recent troubles of the New Haven Railroad, attention has been focused on the nation-wide situation of the country's mounting rail transportation problems. They have also awakened New England to the plight of its steadily worsening rail service.

This is especially noticeable in the northern tier of states—Maine, New Hampshire, and Vermont, as well as Massachusetts.

We might say, "Looking for railroad trains in upper New England these days is like looking for vanishing Buffalo nickels." There are few of them left. Years ago the great summer and winter resort areas on the Maine coast and in the mountains of Vermont and New Hampshire supported, and depended upon, the arrival of the daily train load of summer and winter vacationers. There could have been no vacationists without the trains.

The ability of every family to own an automobile, and the advent of high-speed highway systems, have changed all this. Now the railroad stations stand forlorn in town after town, while the streets are clogged with cars.

Through the whole of New England there is now only one "crack" passenger train in an area which originated luxurious train service. This is the "Montrealer"

northbound, and the "Washingtonian" southbound, a daily fast varnish express between those two cities. It is the only train going through the New England area which still provides sleeping cars and meal service.

THE only reason this train remains as a "class" run is because much of it runs over Central Vermont trackage. The Central Vermont is a subsidiary of the Canadian National, which is Canadian government subsidized and operated, and the Ottawa government so far has been willing to absorb any loss this passenger run incurs. But throughout the rest of northern New England, the pickings are slim. In Maine the passenger train has become as rare as the caribou. Except for the skeleton service the Boston & Maine retains into Portland, only one other passenger train runs in Maine. That is a train which the Bangor & Aroostook runs from Northern Junction (to the west of Bangor and reached only by bus from Portland) to Caribou in the far north of the state. Since the departure time is 1:25 A.M., it does not represent extensive service in a state of close to one million people.

Lewiston-Auburn, the twin industrial cities, and one of Maine's large population

WHAT OTHERS THINK

areas, are without passenger service. Down Easters, who at one time could boast of the prestige "Flying Yankee," "The Gull," "The Pine Tree," and "The Alouette," take the bus, or ride an automobile.

Franconia and Crawford Notches, the scenic pride of New Hampshire, now only see occasional freights. The green velvet and shining brass of the Boston & Maine's passenger trains through the White Mountains vanished years ago.

THE full impact of the railroad's decline may be obtained from a look at the sadly skimpy Boston & Maine timetable. Aside from commuter trains, only eight tables are required to cover all its passenger trains, including connections with the New Haven and Central Vermont.

The numerous "camp specials," which years ago took thousands of youngsters to summer camps by the mountains and lakes, run no more. The joyful frolicking on the trains which the city children enjoyed as they voyaged to a summer in the country exists no longer. If a parent is thinking, perhaps, of sending his youngster and his baggage to Williams College, he finds sooner or later that no public transportation, neither train nor bus, runs to Williamstown, Massachusetts. It is still possible, though, to get a girl to Smith College in Northampton, Massachusetts, and close to Mount Holyoke College by train, but one must double check to make certain the young lady's baggage can get there with her. The Boston & Maine schedule lists only 27 stations that handle checked baggage in the four upper New England states.

Besides the New Haven, a couple of other New England railroads exist only through a little luck, some penny-pinching, or dependence on one product. The

Bangor & Aroostook without northern Maine potatoes to haul would be in deep trouble. The Rutland Railroad in Vermont, which remained solvent only by dropping passenger service a couple of years ago, would be only a memory without Vermont and New York state milk with which to make up its profitable mail trains. The Boston & Albany's only reason for existing is as a tenuous bridge line between Boston, Albany, and the West.

ON a less cheery note, but nevertheless of significance, is the fact the Boston & Maine emphasizes that no "remains" will be handled in any of its trains except the one between Springfield, Massachusetts, and White River Junction, Vermont, and then at only two stations between these two terminals. While the family burial plots of many New England towns continue to await the return of those sons and daughters who have ventured far afield, their final trip home presumably now requires a long trip in a hearse.

In contrast to the more lengthy passenger runs which have all but died an unnatural death, the commuter rail service around Boston appears to be unusually active. The schedule shows, for example, no less than 23 trains on working days going from Boston to Winchester, a distance of eight miles, and ten between Boston and Concord, a distance of 20 miles. Without the rails to carry a portion of the commuter burden, it is easy to imagine that Boston streets would reach the saturation point at which all traffic grinds to a halt in a city-wide stoppage.

This traffic problem in Boston is one of the reasons the city fathers and all the good Irish politicians are worried over the future of the New Haven which links Boston with the South and provides one of its important commuter "outlets" to

PUBLIC UTILITIES FORTNIGHTLY

the South Shore. In August the state's bid to purchase the Old Colony division of the New Haven was turned down in a U. S. district court.

THE court judge called for the state to do more than create a South Shore Transportation District, before he would allow the state to exercise its option to purchase the defunct service. The judge said he wanted "a firm irrevocable commitment, with the necessary financial capability, actually to establish and operate the transportation system" before he allowed the state to purchase the property.

Its older arteries clogged, and its rail passenger service nearly nonexistent, New England has found that its fine new set of turnpikes and expressways, which at the outset sped traffic through the countryside and past towns with ease, have become filled to the straining point.

The magnificent new road from Boston to Portsmouth, New Hampshire, is already overcrowded and slow on a late Sunday afternoon, and Route 128, the circumferential highway around Boston, which was to take care of the traffic needs for several decades, is frequently bumper-to-bumper on weekdays as well as week ends. No sooner was it completed than work was under way to widen it. The project is still going on. The same problem exists elsewhere as new roads become obsolete before they are completed.

WITH the expressways clogged, and the old highways lined with billboards, the alternative, according to some, is the return of the railroad passenger train. But the New England railroads, which were among the first in the nation to drop passenger trains, are less than willing to return them to service.

Extra! Extra! Railroad Goes Back Into the Passenger Business!

EVERY time one turns the page of a newspaper these days there invariably seems to be some news of another railroad in financial trouble, of railroads trying to merge to avoid or solve financial problems, and of other lines threatening to curtail service, especially commuter passenger runs.

All this seems glum and discouraging.

But one little railroad, with a smile on its face and a heart full of ambition and optimism, is trying to stem the tide all by itself. The Baltimore & Annapolis Railroad—124 years old and all of 20 miles long—is going to get back into the passenger business after dropping the last of its commuter trains in 1949.

In resuming its passenger service, the B&A is bucking an impressive trend. Last year, traffic on the nation's 30 remaining

commuter railroads dwindled to 203 million passengers, 119 million less than in 1945; in that period 19 roads discontinued all commuter service and countless others curtailed the passenger offerings.

The B&A, under President James W. Easter, feels it can detect a changing attitude among commuters, at least in the Baltimore area. The railroad, which also operates a bus service in the same area, believes that people who work in Baltimore are sick and tired of bucking monumental traffic during every morning and afternoon peak traffic period and would be willing to take a fast, rapid transit-type rail car to and from work each day.

THE Baltimore & Annapolis' 12-man maintenance crew has been hacking

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away for weeks at weeds along the road's right of way. As of December 4th the railroad was to begin operating a single self-propelled car on scheduled runs from suburban Harundale, Maryland, into Baltimore and back again. (Harundale is nine miles southeast of Baltimore on the road's line between that city and Annapolis.) If that test proves successful, the B&A plans to add more cars and extend the run.

Easter has been able to persuade the Budd Company of Philadelphia, railroad passenger car makers, to supply free one of its popular diesel-powered cars for the test period. The Baltimore & Ohio Railroad will donate use of its Baltimore depot and some connecting tracks. The B&O will also furnish a track inspection crew. Budd, of course, hopes to get some car leasing business and the B&O some track and station rental fees if the B&A establishes service on a permanent basis.

A Buddliner is a self-propelled rail car, on the market now for several years, which has been credited with saving rail commuter service in many areas. They are inexpensive, as compared with running a string of cars behind a locomotive, easy to maintain, and present a speedy, attractive appearance. They cut down on labor costs, since they require only a motorman and a conductor; sometimes a crew of one is sufficient, since the motorman can double as a conductor, and collect the fares himself.

THE B&A won't have to hire engineers. The road has been running a commuter bus service and has 15 former railroad engineers working as bus drivers. Therefore, the only new outlay the company plans in launching the test will be about \$500 for insuring the Buddliner and moving it to Baltimore. Eventually, however, the B&A will probably have to spend about \$1 million to repair its

antique roadbed and \$5 million for equipment. Lately, the road has been running only one meandering freight a day. If the Buddliner proves a success, the roadbed will have to be fixed to handle the rail car which is capable of high-speed travel.

The B&A made a profit of about \$75,000 on its bus service last year, more than enough to offset a \$40,000 loss on its freight business, which consists of moving some 15 cars a day to and from Annapolis for other roads. The road's rolling stock consists of one diesel engine and two vintage flatcars.

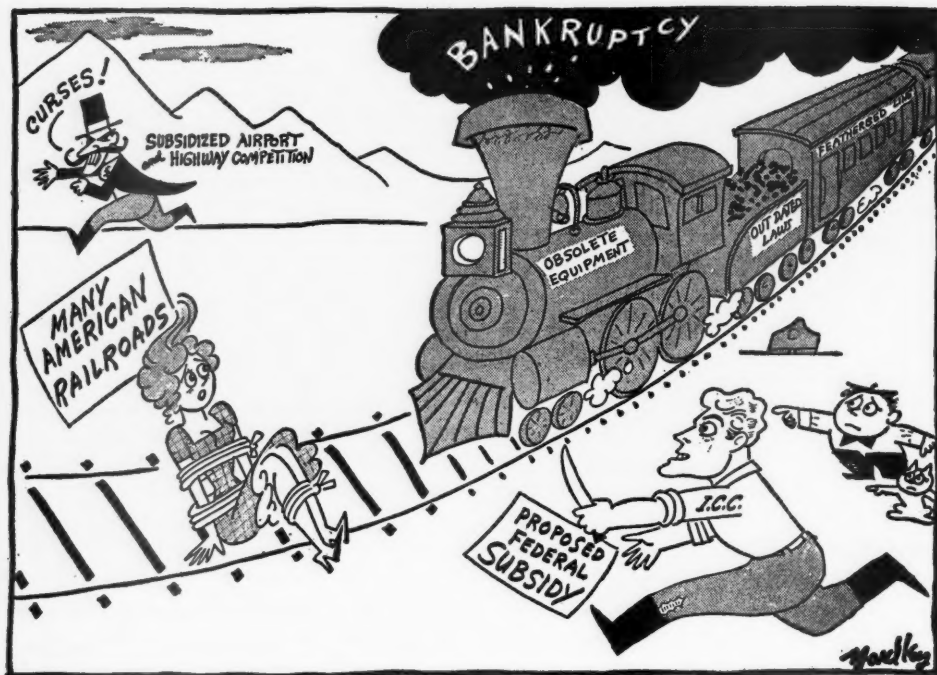
Easter figures the rail service will cut costs for the B&A and provide faster service for commuters. The one rail car will carry 96 people, twice the capacity of a bus. And the cost of operating the car will come to 70 cents a mile, compared with 92 cents for two buses. Addition of more Buddliners in the future would cut the per mile cost of the rail operation still further.

The first rail car will operate at only 25 miles an hour because of the current condition of the B&A's tracks. Even so, the nine-mile trip will take twenty minutes compared with at least forty minutes by bus. The railroad plans to charge 50 cents for a one-way trip, five cents more than its bus fare.

THE line dropped passenger service twelve years ago because it was losing money on the operation. However, at that time the line was electrified and the company had to contend with the high maintenance costs of lines and power stations.

The Baltimore & Annapolis was carrying about 1.2 million rail passengers a year just before it quit the commuter business and had almost 2 million bus riders each year. It still collects close to 2 million bus fares annually, and Easter figures that in addition to switching

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Courtesy, The Sun (Baltimore)

THE GREAT RAILROAD RESCUE . . . OR CAN OUR HERO SAVE HER IN TIME?

some of the bus riders to the rails, the B&A can recapture some of its former rail commuters and pick up traffic among new residents of growing Anne Arundel county.

THE experiment could have a broad impact on Baltimore commuters and provide at least a partial answer to the metropolitan area's mass transit problem. And it is a safe bet that neighboring Washington with its king-sized traffic snarls and jam-packed Potomac bridges will be looking on with interest. Washington used to be served by an interurban electric predecessor of B&A when it used to be called the old "WB&A" (Washing-

ton, Baltimore, and Annapolis). It also had an old steam railroad line—the Chesapeake Beach Railroad, which traveled eastward towards the Bay in the general area south of Annapolis. But these vanished with the depression thirties and the rights of way have long since been lost to suburban homes, tobacco fields, etc.

BALTIMORE commuters who travel into the nation's sixth largest city are currently almost totally dependent on private automobiles and buses, taxing the capacity of its downtown streets and main arteries. The only rail commuter service now is provided on a limited scale by some of

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the intercity trains of the Pennsylvania Railroad and the B&O to Washington, D. C., to the south, and the Wilmington,

Delaware-Philadelphia region to the north.

—M. B. P.

Fuel Use in Pennsylvania Electric Industry

A STUDY in the use of primary energy—coal, natural gas, petroleum, and water power—in Pennsylvania's electric generating industry has been published by two professors of geography at The Pennsylvania State University's College of Mineral Industries.

The pair, George F. Deasy and Phyllis R. Griess, describe the consumption of fuels in the electric generating industry in the commonwealth and the factors affecting the selective use of these different fuels supplied by both Pennsylvania and out-of-state sources.

They find that competition among fuel producers for the electric generating market is severe, and data they present concerning primary energy utilized at 174 for the state's electric generating plants reveal significant geographical differences in types and sources of energy utilized. Resource proximity and transportation facilities account for most of such differences; and these factors, when reduced to a monetary basis, indicate that selection of an energy type or source for use at a specific generating plant is largely determined by comparative delivered costs per unit of energy.

Since coal, especially bituminous, is one of the state's most marketable commodities, a large part of this study is devoted to this energy source. The authors conclude that several courses of action are open to Pennsylvania's bituminous and anthracite producers which may enable them to expand their market territory and increase their share of the commonwealth's electric generating industry and fuel market.

THE competition for the electric generating industry, they contend, is severe because all five major types of primary energy—bituminous coal, anthracite coal, petroleum, natural gas, and water power—are all produced in sufficient quantities within the state. In addition, out-of-state sources of bituminous coal, fuel oil, and natural gas compete actively for a share of the market.

There are about 246 electric generating plants in Pennsylvania and data from 174 of these are used for the present study. The 174 include all of the larger generating facilities and account for an estimated 97 per cent of the state's total generating capacity.

As might be expected, the bituminous coal zone covers much of the commonwealth and 78 plants use this source of energy only. Next in importance, in terms of area covered, is the anthracite coal zone, located primarily in the east-central part of the state, and which includes 19 plants which use this type of fuel.

In between the two above zones is a region of mixed fuel types, the anthracite-bituminous coal zone, in which seven plants are found. The natural gas and fuel oil zone is located in the northwestern part of the state. Within it, 13 generating plants burn either gas or fuel oil, or both. There are also the tidewater mixed fuels zone (the greater Philadelphia area) in which there are 26 plants, and the Lake Erie mixed fuels zone, containing 12 plants. Depending on falling water as a primary source of energy are the glacial lake hydro zone of the northeast (two plants), the lower Susquehanna

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hydro zone of the southeast (four plants), and the south-central hydro zone (three plants).

THE authors point out that the energy pattern for the state's electric generating industry is further complicated by the fact that out-of-state sources supply appreciable quantities of energy that compete directly with commonwealth sources. Bituminous coal from West Virginia and, to a lesser extent, from Ohio, finds an important market among the state's electric plants; fuel oil from Mid-Continent, Gulf Coast, and foreign sources obtains an outlet in the Pennsylvania generating industry; and natural gas as well as petroleum-derived refinery fuel oil, from out-of-state sources, offer competition to local energy suppliers.

Of the 103 plants which burn bituminous coal, either alone or in combination, 63 of them burn Pennsylvania bituminous exclusively, 20 use only bituminous from West Virginia, three depend on Ohio bituminous, 16 employ a combination of Pennsylvania and West Virginia coal, while one uses a mixture of Ohio, West Virginia, and Pennsylvania coal.

More important, point out the authors, is that there exist concentrations of bituminous coal from out-of-state sources in certain restricted parts of the commonwealth. There is a sizable area in southeastern and south-central Pennsylvania, comprising about one-fifth of the state, where large amounts of West Virginia coal are burned either alone or in combination with Pennsylvania bituminous. There is also an area in the northwest, along the Lake Erie shore, in which Pennsylvania coal faces competition not only from West Virginia coal, but also from that of Ohio.

A third area in which out-of-state bituminous coal is utilized is in the south-

west, near the junction of the Ohio, Alleghany, and Monongahela rivers, where several plants burn West Virginia and Ohio coal as well as that from Pennsylvania.

A STUDY of the sources of fuel oil shows that out-of-state fuel oil is used exclusively by a good number of oil-burning electric generating plants in the greater Philadelphia area, the greater Erie area of the northwest, and the greater Pittsburgh area of the southwest. Only in the interior northwest are there generating plants (three) employing Pennsylvania-derived crude oil.

The gas source situation is somewhat similar to that for fuel oil, the authors found. Gas from out-of-state sources is employed exclusively in the three gas-using generating plants in the Philadelphia area and in one in the south-central part of the state. On the other hand, the six plants in the greater Pittsburgh area and the northwest interior all employ either Pennsylvania-derived gas, or a combination of Pennsylvania and out-of-state gas.

Unlike the other energy sources, there is no competition for Pennsylvania anthracite producers from out-of-state anthracite sources, and no out-of-state water is transported into the state for purposes of generating electricity.

The most important element in the Pennsylvania electric energy picture unquestionably is the commonwealth's own supply of bituminous coal, say the authors. Such coal powers more generating plants and supplies electricity to a more extensive territory than any other competing type or source of energy. Yet, it by no means monopolizes the electric generating market of the state.

THE study discusses and evaluates cost data and the cost pattern, based on

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the Btu content of the coal, mining and processing expenses and profits, and delivery expenses and profits. One of the factors which greatly affects the final cost pattern is the type of mining involved—whether underground or strip. Where stripping is significant, coal is relatively cheap because tonnages mined per manday are larger than in deep mining. Since strip mining is concentrated largely in the middle and northern producing counties, mine prices of coal are relatively cheap in those areas.

The authors conclude that the delivered cost pattern for Pennsylvania bituminous coal employed by generating plants within the commonwealth can be attributed to a number of factors. Delivered costs are lowest where generating plants are located in areas of large volume strip mining, and delivered costs are higher where plants are situated in areas of large volume of underground mining or of small volume strip mining. Delivered costs to generating plants increase rapidly within a short distance to the east and southeast of the mining areas, and then more gradually with increasing distances southeastward, as fixed charges associated with rail transport are proportioned over a greater number of miles.

ONE of the apparently anomalous aspects of the primary energy facet of the state's electric generating industry, the authors found, is the degree to which West Virginia bituminous coal is used. Such coal supplies a major share of the southeastern and south-central Pennsylvania utility market, even though handicapped by a location 50 to 100 miles farther from the market. The report concludes that this competition is possible because of thick coal seams in West Virginia and a relatively high degree of mechanization. These advantages result

in low coal values F. O. B. mine which, combined with an advantageous freight rate structure toward the northeast and low-cost river transport facilities toward the north, enable West Virginia coal to overcome the handicap of distance.

Unlike its West Virginia counterpart, Ohio bituminous plays only a minor rôle in the electric generating industry in Pennsylvania. The reason Ohio coal has been unable to overcome the handicap of distance is that tonnages mined per manday in Ohio producing counties average no higher than tonnages obtained from competing counties in Pennsylvania.

The dominance of anthracite in the electric generating market of east-central Pennsylvania is virtually complete, the authors find. All except one of the 20 generating plants in the anthracite coal zone burn such fuel exclusively, and the exception depends on anthracite for more than three-fourths of its energy requirements.

A NOTEWORTHY aspect, they point out, is the inability of the anthracite industry to capture markets located more than a short distance from the coal fields. Pennsylvania and West Virginia bituminous coal operators find outlets in many commonwealth generating plants located 100 to 300 miles from the coal fields, and fuel oil and gas producers market their products at various sites scattered throughout the state, but anthracite producers are unable to supply the fuel needs of electric generating plants situated more than approximately 30 miles from the margins of the mining areas.

The reason presented in the report to indicate the anthracite industry's ability to dominate the local and nearby electric generating market is because of the preferential pricing treatment it accords the smaller-sized industrial grades of its prod-

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uct, together with the availability of low-cost truck transport for nearby delivery. Inability to compete in more distant markets is due in large measure, they say, to the high rail freight charges applied to its product, rather than to disproportionately high F. O. B. breaker costs.

FUEL oil and gas are of relatively minor significance in the electric generating industry of Pennsylvania, for most plants using such energy types are of small capacity and obtain the bulk of their energy requirements from other types of fuels. Nevertheless, the authors believe, the sizable number of plants (18) employing gas and oil, and their widespread geographic distribution throughout the state, warrant their investigation. From data received, neither gas nor oil, nor a combination of the two, was competitive with coal on a cost basis anywhere in the state except in the greater Philadelphia area, where barge or tanker delivery of low-cost, out-of-state crude petroleum and fuel oil is possible, and along the main transcontinental pipelines in energy-deficient south-central and southeastern Pennsylvania.

One might raise the question, the report says, as to why owners of many generating plants other than the present users do not employ oil or gas. Certainly, they state, there is no lack of suitable transport facilities since virtually the whole of the state has a close network of gas, crude oil and oil products pipelines, and roads. Apparently, they conclude, nonusers are unwilling, or find it competitively impossible, to pay the price for such high-cost energy no matter how desirable may be its nonmonetary advantages, such as cleanliness, convenience, and ease of storage and handling.

The trend, instead, is for private utility and industrial owners of generating plants outside of the greater Philadelphia

area to close down those using gas and/or oil, or to convert them to coal. As long as coal remains lower in cost than petroleum or gas energy, the likelihood of any major displacement of the former in the electric generating markets of Pennsylvania appears remote, it is believed.

THE remaining significant source of energy for the electric generating industry is hydro power. There are ten hydroelectric plants in the state, all except one localized within the three hydro zones.

On a basis of comparison based upon overall production costs of generating electricity stated in terms of mills per net kilowatt-hour generated, hydroelectric stations in Pennsylvania compare favorably with almost all coal-, oil-, and gas-powered units.

Where hydroelectric sites do not exist in the state the threat of competition from hydro power to other sources of energy is negligible. Since present supplies of hydroelectricity are limited, the expense of developing remaining potential sites is high, and cost of transmitting electricity over any considerable distance exceeds the cost of shipping fossil fuels in their raw state to the same sites.

In conclusion, the report indicates that, except in the case of fuel oil and gas which possess certain unique advantages, selection of an energy type or source for use at a specific generating plant is largely determined by comparative delivered costs per unit of energy. Sufficient competitive advantage for a specific fuel type or source establishes its priority at a given plant.

THE authors believe that several courses of action are open to Pennsylvania bituminous coal producers in an attempt to improve their market position. The first, and perhaps the most ob-

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vious, is to lower mining and processing expenses per ton. This objective conceivably may be accomplished through greater emphasis on low-cost strip mining, greater mechanization of underground mining, and the concentration of mining efforts in larger and therefore presumably more efficient mines. Such action would decrease the existing differential in mining expenses between Pennsylvania bituminous coal producers and their competitors in neighboring states, the study says.

A second course of action would be to press for removal of railroad freight rate differentials, if any, that might exist between Pennsylvania and West Virginia coal marketed in Pennsylvania, and thus increase the territory in southern and eastern portions of the commonwealth wherein Pennsylvania-derived coal has a competitive market advantage.

A third procedure open to Pennsylvania bituminous coal producers is the apparently anomalous one, according to the report, of requesting an increase in variable railroad transportation charges on all bituminous coal shipped into southern and eastern Pennsylvania. If granted, the authors believe, this increase in charges would reduce the relative significance of cheaper mining now employed by West Virginia producers.

THERE appears to be little opportunity for Pennsylvania bituminous coal producers to expand their market into the area where low-cost anthracite is now entrenched, the study says. Opportunities for anthracite producers, however, to enlarge market territory among state electric generating plants are less diverse but

perhaps more promising than those available to bituminous coal producers. A major course of action recommended by the study is to work for reduction of the exceptionally high freight rates that currently restrict outlets for anthracite to the near vicinity of the fields. If reduced freight rates can be obtained, it might be possible for the anthracite industry to expand its market territory into southeastern Pennsylvania as far as the greater Philadelphia area and to supply many of the electric generating plants now dependent upon Pennsylvania and West Virginia coal, and imported oil.

Another possibility available to anthracite operators is to effect a complete change in their present local *versus* outside pricing system, raising prices drastically on local sales in what is virtually a captive market, and lowering prices equivalently on outside sales in order to produce a more competitive situation in areas now excluded from the anthracite market territory. Such a pricing revision could place anthracite in a more favorable price relationship in southeastern Pennsylvania.

THE outlook for expansion of markets for Pennsylvania-derived fuel oil and gas in the commonwealth's electric generating industry is "bleak," says the report. These fuels are noncompetitive, in terms of cost, with all other types and sources of energy presently utilized in the state. At best, local fuel oil and gas producers can only hope to retain their present limited outlets, based on the high cost of changeover and the benefits gas and oil can offer, the authors conclude.

—M. B. P.



The March of Events

Arkansas

Court Rules in Co-op Controversy

A RULING handed down by the state supreme court said Arkansas Power & Light Company must compensate the Woodruff Electric Co-operative Corporation for territory north of Forrest City that it acquired from the co-op in 1957.

Under a state law listed as Act 85 of 1955, the high court said the co-op is entitled to receive territory elsewhere similar in value to the area it gave up to Arkansas Power. The court's majority opinion said municipally owned utilities were exempted from the 1955 law, but Forrest City had forfeited its exemption by leasing its electric system to Arkansas Power.

The high court said Arkansas Power & Light, "under the facts and circumstances of this case, has been given the right to serve the disputed territory just

as effectively as if it had bought (the) city's plant instead of leasing it. Certainly it is true that Woodruff's loss would be the same in either event."

In disagreeing with the majority opinion, Chief Justice Carleton Harris said it would appear logical that the city, if and when it resumes its operation of the municipal power plant, would be forced to reimburse Arkansas Power for whatever territory it gave up to the co-op.

Associate Justice Sam Robinson also dissented from the majority opinion, but did not issue a written opinion or join the chief justice in his dissent.

The supreme court's decision reversed both the state public service commission and Pulaski County Circuit Court Judge J. Mitchell Cockrill, who had denied the co-op's request for an exchange of territory to match the area it had lost. The high tribunal remanded the case to the commission to effect this exchange.

Colorado

Legality of Power Line Studied

THE state public utilities commission has taken under consideration, after hearing final arguments in the case, a

question of the legality of a new power line already built in the western part of the state by Colorado-Ute, an organization of four electric associations. Although the line was scheduled to go into

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operation immediately, the commission had to consider whether the organization even had a right to build the transmission facilities.

No decision was expected for several weeks since the commission must study about 600 pages of typewritten testimony

and arguments accumulated during months of hearings. The line is opposed by Public Service Company of Colorado. It extends from Cameo, near Grand Junction, to Montrose. Public Service asserts that no public need has been shown for the line.

Kentucky

Electric Rate Cut Planned

KENTUCKY UTILITIES COMPANY, Lexington, has proposed a rate cut to encourage residential customers to use more electricity, particularly for heating and air conditioning. The rate for electricity in excess of 400 kilowatt-hours a month would be $1\frac{1}{2}$ cents a kilowatt-hour, compared with the current structure of $2\frac{1}{4}$ cents for each kilowatt-hour in ex-

cess of 150 kilowatt-hours a month.

The first year's savings to customers would be about \$350,000, W. H. Skinner, vice president, estimated. Subject to approval by the state public service commission, the new rate would become effective on bills received after February 1, 1962. The utility serves more than 22,000 residential customers in 77 Kentucky counties outside the Louisville area.

Montana

Commission Engages in New Duties

THE state public service commission has been engaged since July 1st with new duties imposed by the 1961 state legislature. Under a new state law, which was listed in the legislature as Senate Bill 186, the commission's approval is required for the issuance of securities by electric and natural gas utility companies. The law provides that hearings may be held in connection with the agency's investigation of stock issues, but thus far the commission apparently has felt them to be unnecessary.

The commission, seven days after the law went into effect, authorized Montana Power Company, in connection with its corporate move to Montana from New Jersey, to issue nearly 8.5 million shares of common and preferred stock in a changeover that is expected to be com-

pleted by the end of the year. Montana Power, in the same application, asked commission approval of the merger of the Montana and New Jersey corporations. However, the commission ruled that it had no power to approve the merger application. The commission subsequently learned that the Federal Power Commission had approved the transfer of licenses and facilities to the new Montana corporation from the New Jersey corporation.

In another matter, the commission approved three requests of Washington Water Power Company, which furnishes electric service in western Montana. This utility was authorized to issue 6,000 shares of common stock to its employees under a stock purchase plan, 22,820 shares of common stock until November 6, 1968, under a key employees' stock ownership plan, and 20,900 shares under the same

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plan between November 4, 1962, and November 3, 1970.

The 1961 Montana law eliminates the need for approval by the FPC for securities issued by utilities, unless the utility

also operates in a state which does not have a similar law. However, approval by the Securities and Exchange Commission still is required for all security issues.

New Mexico

Court Acts in Phone Tax Dispute

CLEARING the way to put \$47,412,067 in 1961 valuations for Mountain States Telephone & Telegraph Company for ad valorem tax purposes on 31 county rolls, the state supreme court vacated a Santa Fe district court order enjoining the State Tax Commission from certifying the valuations to county assessors.

The high state tribunal also directed Santa Fe district court to take necessary steps to permit Mountain States to pay whatever portion of its 1961 property taxes it chooses under protest pending final determination of the case. The su-

preme court also ordered the lower court to act to make affected county treasurers parties in the appeal of the Mountain States valuations. The high court held that the taxing process cannot be interrupted. "This is a matter of public interest and affects the very foundations of our state government," the court said in its unanimous opinion.

Mountain States contended that a 45.22 per cent assessment rate applied to its property in New Mexico by the State Tax Commission is discriminatory. It also contends there are inequalities between assessments for different types of corporate taxpayers and also in county assessment rates.

Pennsylvania

Eddystone Station Dedicated

PHILADELPHIA ELECTRIC COMPANY'S Eddystone generating station, the world's most efficient electric power plant, was dedicated on November 9th at ceremonies held in the station, located on the Delaware river in Eddystone borough. R. G. Rincliffe, president of Philadelphia Electric, unveiled a bronze tablet to officially dedicate the utility's newest and largest generating plant.

Participating in the ceremonies, in addition to Mr. Rincliffe, were H. N. Ramsey, executive vice president of Philadelphia Electric; Governor David L. Lawrence, of Pennsylvania; Paul Sides, mayor of Eddystone borough; Fredric R. Mann, director of commerce of the city of Philadelphia; John Facenda, radio

and television newscaster and commentator; and the Reverend Dr. D. Evor Roberts, pastor of Swarthmore Presbyterian Church, who gave the invocation.

In dedicating the plant, Mr. Rincliffe declared that Eddystone was built for two reasons: "First, because Eddystone will help keep the price of electricity low for our customers," he said, "and, second, because Eddystone strengthens the assurance of an uninterrupted flow of electric power for the homes, businesses, and industries of the Delaware valley area."

The utility president pointed out that Eddystone represents vast sums of privately invested capital put to work to provide vital power for this progressive and expanding area.



Progress of Regulation

Trends and Topics

Labor Disputes Raise Regulatory Questions

STRIKES by bus drivers last month in Rochester, New York; Dayton, Ohio; and Kansas City, Missouri, again direct attention to the power of unions to endanger public welfare, without governmental restraints which are placed upon other citizens. Businessmen go to jail for conspiring to fix prices of products, while union leaders, under our outdated laws, may conspire to fix prices of labor, set up picket lines to block those who wish to work or do business, and do what would be termed physical violence, or assault, if not instigated by labor unions. Mob pressure seems to have acquired respectability in the eyes of some people recently.

Commission Jurisdiction

Commissions uniformly disclaim jurisdiction over purely labor disputes and employee-management relations. The Illinois commission, in an investigation of matters relating to train crews, said that it lacked jurisdiction, not only because the state law fails to confer such jurisdiction, but that in the area of railroad labor it would appear that Congress had pre-empted the field by the passage of the Railway Labor Act (39 PUR3d 206).

Some by-products of labor disputes, however, occasionally present questions for regulatory decision. Within this area there are questions relating to the duty to serve, the continuance of operating authority, authorization of a substitute service when existing service is blocked by strikers, and suspension of operators' licenses by the Federal Communications Commission.

Duty to Serve in Strike Area

The duty to serve in the face of picketing and violence is discussed in 58 PUBLIC UTILITIES FORTNIGHTLY 793 (November 8, 1956). Reference is made to decisions on the duty to provide electric and gas service in New York (62 PUR NS 1, 245, 248), electric service in Illinois (63 PUR NS 129, 136), gas service in Illinois (62 PUR NS 181), and transportation service (27 PUR NS 14; 31 PUR NS 186; 1 PUR3d 150; 15 PUR3d 99).

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Recent decisions by the Georgia courts and a federal court involve this question.

The Georgia supreme court held that a lower court should have granted an injunction against common carriers refusing to furnish service to a shipper being picketed by a labor union, although there was conflicting evidence as to a conspiracy of members of the union and the carriers or of coercion by union members to interfere with service, as a consequence of which it was held that the court did not abuse its discretion in denying an injunction as to members of the union. The supreme court ruled that there was error in denying injunctive relief enjoining the carriers from refusing to furnish services required by law of a common carrier and from operating on highways of the state until such time as they should have restored all services to Beck & Gregg Hardware Company normally and customarily furnished by common carriers. The court said that while the Interstate Commerce Act gives shippers new rights, existing rights under state law are preserved, and the jurisdiction of state courts is not superseded in cases in which the decision does not invoke the determination of matters calling for the exercise of administrative power and discretion of the Interstate Commerce Commission, or relate to subjects over which exclusive jurisdiction is given to federal courts (5 PUR3d 272).

A freight forwarder and motor common carriers, according to a federal court decision, are not relieved from liability to public warehouses for failure to make deliveries because of union member custom to refuse to cross a picket line, or because of "Protection of Rights" clauses in contracts with the union. Nor are they relieved from liability because it was not their conduct but that of their union employees, or because it was probable that they faced a strike of their own if they employed nonunion employees to cross the picket line (165 F Supp 67).

Question of Service Abandonment

The legal term "act of God" has been applied to inevitable circumstances causing an accident or preventing the performance of a duty. An act of a labor union would seem to be distinguishable, although we find the words "acts of God and labor disputes" in a California decision on unauthorized discontinuance of service (38 PUR3d 500).

The commission dismissed a complaint that a motor carrier failed to transport shipments delivered to a depot where a union had placed a picket line around the carrier's terminal. The Furniture Manufacturers Association of California contended that discontinuance of service without prior permission of the commission constituted abandonment of operating rights and that the operating rights must be revoked. The carrier contended that he had not abandoned operating rights and that discontinuance of service was involuntary. The commission said operations had been suspended because of a labor dispute, and the suspension was not voluntary. Since strikes and lockouts are "lawful provided they are pursued within legal limits," a suspension because of a legitimate labor dispute is not the kind of voluntary unauthorized suspension for which operating rights may be revoked.

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Grant of Competitive Operating Rights

A federal court recently upheld an order of the Interstate Commerce Commission granting competitive motor carrier authority over the objection of common carriers and a labor union. The court ruled that the commission was justified in granting a limited certificate of convenience and necessity where existing carriers, because of union pressure, failed to render adequate service. Pressure brought to bear upon interstate carriers by a union to force them to accept a union shop contract, which pressure resulted in their neglecting to provide adequate service, did not constitute such a labor dispute as would preclude the commission from granting competitive authority to insure adequate service to the public. The court decided that where existing motor freight carriers had subordinated their statutory service obligations to "hot cargo" contract clauses with a union, the commission was not required to give controlling weight to a belated cessation of such conduct. "Hot cargo" contract clauses with a union, according to the court, do not excuse motor carriers for refusing to pick up and deliver shipments tendered to them by shippers which are experiencing labor troubles and whose plants are picketed (40 PUR3d 12).

The Nevada commission, however, denied an application by a cab company for temporary operating authority during the pendency of a labor dispute with an authorized taxicab company. An alleged emergency, said the commission, did not in fact exist since the public was receiving adequate transportation during the labor dispute. If a third party were given operating authority, this would prove detrimental to the parties involved in a labor dispute, and the commission said it had not been given such a power by the legislature. If temporary authority were granted, the union would lose its power to bargain and the carriers would lose their businesses. The concept of free collective bargaining would be destroyed (40 PUR3d 103).

Suspension of Operators' Licenses

A federal court upheld the suspension of radiotelephone operators' licenses by the Federal Communications Commission where the operators, in the employ of a licensed television station, went on strike and disabled the transmitting equipment of the station, although they did not physically destroy, break, or permanently harm any equipment. The court said that the existence of a labor dispute, or even justification for a strike, furnishes no justification for radiotelephone operators to damage their employer's transmitter equipment. The commission had found that the operators, immediately prior to walking off their jobs, manipulated and dislocated various controls and connections and accessories at the transmitter so that it could not have been started as scheduled, or until the maladjustments were searched out and corrected (24 PUR3d 398).

Review of Current Cases

Commission Rules on Acquisition Adjustment, Extraordinary Property Losses, and Conversion Costs

THE Florida commission, in a combined docket proceeding involving rates of the Jacksonville Gas Corporation and the four divisions of the Florida Gas Utilities Company, fixed the rates to be charged gas customers and also resolved questions relating to acquisition adjustment, extraordinary property losses, and conversion costs.

Acquisition Adjustment

The question arose as to how plant acquisition adjustments should be treated in the rate base. The usual practice, pointed out the commission, is to include an amount representing the plant acquisition adjustments, less reserve for amortization of such adjustments, if the records support the conclusion that the transaction was the result of arm's-length bargaining and constituted a prudent investment. The amount included is then amortized over a period of years as operating revenue deductions.

The purchaser of utility plant could have either a debit or a credit acquisition adjustment, depending upon the assignment of the overall purchase price to the various functional categories. In this case, each of the companies had a debit acquisition adjustment. This meant that, with reference to the various classes of plant purchased and then in service, the utility's cost was greater than the seller's depreciated cost.

Applicable statutes, said the commission, prescribe the prudent investment rate base. The commission held that where a utility has shown a debit acquisition adjustment, the unamortized balance thereof should be allowed in the rate base. Also, the utility should be permitted to amortize the adjustment over a period of years.

Extraordinary Property Losses

It was contended by the utilities that they should be allowed to include the unamortized balances of extraordinary property losses in the rate base and charge the annual amortization over a period of years as expense. The commission disagreed with the rate base inclusion. The item represented property that had been retired and was no longer used and useful in serving the public.

The commission did recognize, however, that the losses stemmed from retired property upon conversion from manufactured gas to natural gas. On that basis, it concluded that the amount of such losses should be recovered by annual amortization over a ten-year period, the amounts being charged to operating expense.

Conversion Costs

Costs had been incurred in converting customer appliances to use natural gas rather than manufactured gas. Such costs were held to be operating expenses. Because of the large amounts involved, the income picture would be distorted if charged off in one period, and for that reason amortization of the amount over a period of ten years was ordered.

The company claimed that it should also be permitted to include the unamortized balances in the rate base. The commission again disagreed, pointing out that the item was expense and did not represent any tangible property or capital investment.

The company had done special financing for the purpose of defraying the cost of the conversions and was therefore allowed to charge interest at the rate of

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4½ per cent per annum on the unamortized balance, and to amortize the interest along with the other conversion costs.

Tariff Provisions

The commission upheld a minimum monthly charge of \$1.50 for the first three therms.

A turn-on charge of \$2.50 was approved, but no charge was to be made for turn-offs or disconnects.

There should be a service charge of \$2.50 per call for emergency or repair service on the customer's side of the meter, the commission held. Free service in this sphere was discriminatory. It invited frequent calls when there was little or no excuse for the call. Actually, said the commission, such service is never free, even though no charge is made, for the simple reason that the cost of such free service is charged to operating expense and ultimately becomes a part of the rate the customer pays for gas.

Regulatory Climate

An interesting point had been raised by the companies when they asked the com-

mission to approve a permissible return of 7 per cent for each operation, while, at the same time, insisting that the various rates for the different divisions would develop nothing like a fair return. The companies asked the commission to fix the 7 per cent return to demonstrate to the investing public that Florida's regulatory climate was good, that Florida was a safe place to invest money.

The commission refused to believe that its reputation for fair and realistic regulation was such an ephemeral thing that it could gain substance from the fixing of an artificial rate of return. It would be a disservice to the utility and to the investing public, said the commission, to enter into an academic discussion of what is or is not a fair and reasonable return for a natural gas distribution company. A fair and reasonable return had not been proposed, as an actuality, and, therefore, the question was not an issue in the proceedings. When the time comes to fix a fair rate of return, the commission will do so. *Re Jacksonville Gas Corp. et al. Docket Nos. 6072-GU et al. Order No. 3227, September 12, 1961.*



Deferred Tax Reserve and Rate Uniformity Ruled Upon in Gas Rate Case

WHILE the Michigan Gas Utilities Company claimed a rate of return of 7.64 per cent, as against the commission staff's suggested return of 6.56 per cent, the Michigan commission determined that 6.85 per cent on a net investment rate base would be adequate. In support of its overall return claim, the company contended for a return of 13½ per cent on common stock equity. The commission staff, on the other hand, contended that a return of 11 per cent on common equity would be sufficient. The

commission did not rule expressly on the equity return question. It did rule, however, that the company's reserve for deferred taxes resulting from accelerated depreciation should be considered as a capital component. The reserve represents funds available internally which make it unnecessary to raise similar amounts of capital from external sources, it was pointed out.

Nonuniform Rates

This rate proceeding related to the

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southern and western divisions of the company. They are not physically integrated and are not supplied by the same pipeline. Nor are they equally profitable. Nevertheless, the company urged that uniform rates be authorized for the two divisions. The commission found no reason in this case to depart from its historical position that physical integration must be the basis for uniform rates over given service areas. Furthermore, it appeared that uniform rates in both divisions would result in the subsidy of one division by the customers of the other. Rates fixed separately would eliminate any such subsidy.

Rate Base Items

The proper rate base to be used in testing the adequacy of rates, the commission declared, is the amount invested in plant used and useful in providing utility service. The correct measure of such investment is the depreciated original cost of plant. On this basis a rate base was established for each division. The commission observed that the principal deficiency of current cost and trended cost presentations is that they involve in substantial measure matters of judgment which are subject to varying interpretations by different persons. Investment in plant, or depreciated original cost of plant, it was noted, is not subject to this deficiency. Rather, it represents definitely the actual amount of money invested and is readily determinable from audited accounting records of the company.

Minimum bank balances were disallowed as a part of the cash working capital requirement. The commission thought an allowance of forty-five days' operating expenses, plus a portion of purchased gas expense, would provide ample working capital to meet current bills.

The company's investment in water heater rental operations was excluded

from the rate base. Associated revenues and expenses were similarly excluded from consideration. The commission found unconvincing a company contention that the rental operations should be considered as a gas sales promotion. In any event, the rental operations had been discontinued, at the time of this decision, in favor of a time-payment plan for the sale of water heaters.

Operating Cost Items

Operating data for 1960 were adjusted for known changes as a basis for annualizing revenues and expenses so as to reflect the going level of investment, expenses, and revenues as of the end of the year. Adjustment was also made to reflect the average temperature for a period of ten years.

The cost of maintaining an office in New York for the company president was excluded from operating expenses, as were telephone calls and travel expenses between the company's operating headquarters in Michigan and the New York office. The commission seemed unimpressed with the contention of the company that contact with New York financial institutions is more readily accomplished by maintaining a New York office and that the customers derive a corresponding advantage. Since the conclusion of the hearing in this case, the president's office was moved to the operating headquarters.

It appeared that the company had made sales to municipalities at rates lower than the standard filed rates. These sales, not subject to the commission's jurisdiction, were adjusted to the level of the company's standard interruptible rate, for the purposes of this rate proceeding. Ratepayers should not be required to subsidize such municipal sales, the commission declared. *Re Michigan Gas Utilities Co. Case No. U-512, September 21, 1961.*

PROGRESS OF REGULATION

Rate Increase Allows for Plant Improvements

THE Montana commission granted a small gas company a rate increase this year to cover the cost of purchased gas in 1963. Under a gas-purchase contract with the supplier, the cost to the company will increase from \$65,000 in 1960, to \$108,000 in 1962, and \$128,000 in 1963. The new rates, covering the 1963 cost of gas, will produce a surplus of \$21,000 for 1962.

The commission indicated, however,

that it did not hesitate to approve this temporary surplus, knowing that it will be used for needed plant improvements, repairs, and replacements. It was noted that the applicant is an association which may return any cash surplus to the users in the form of capital credits, which in turn may be retired in the form of cash or used to improve the existing system. *Re Shelby Gas Asso. Docket No. 5011, Order No. 2877, August 29, 1961.*



Temporary Rates Established under Bond

DISMISSING an appeal by the state, the New Hampshire supreme court upheld a commission order which allowed a telephone company to establish as temporary rates the current rates being charged, provided the company would file a bond for refund of any excess of such temporary rates over final rates to be fixed later.

The commission's action was not an abuse of discretion.

The court thought evidence upon which the commission provided for a reduction of rates below the current level in the event the company should not choose to file a bond warranted a finding that permanent rates might well prove lower than current rates. It appeared, therefore, that

a statute providing for the filing of a bond in connection with temporary rates was applicable, since the statute's purpose was to guarantee a return to the ratepayer of the difference in rates where the final rate proves to be lower than the temporary rate.

The rate-making power of the commission is to be distinguished from auxiliary powers which are more strictly limited, said the court. While the commission's authority does not extend beyond expressed enactments or their fairly implied inferences, its authority to regulate rates is plenary save in a few specifically excepted instances. *New Hampshire v New England Teleph. & Teleg. Co. 173 A2d 728.*



Discontinuance of Profitable Agency Station to Save System-wide Expenses Disapproved

THE Utah commission has denied the Union Pacific's application for authority to discontinue an agency station at Lehi. The case posed the question whether a railroad should be permitted to discontinue a manifestly profitable operation in order to save expenses beneficial to its overall system operation.

Such a basis, thought the commission, evidences unusual efficiency. Utilities, though, seek to extend service to any community where a profit can be realized. To propose to render an inferior service to a community which has been producing profitable returns to the utility on no other theory than to save expense in its system

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operation could not be said to be in the interest of the public.

The applicant was commended for its efforts to weed out operations which were unprofitable or wasteful or in the establishment of a service which was an improvement over the existing one, such as the use of a motor truck for LCL shipments, rather than to wastefully employ half-filled freight cars in service from town to town. The service proposed, though, could not be said to be an im-

provement so far as the public, the people of Lehi, were concerned. While decision of cases of this character should not be controlled by sentiment, said the commission, it could not entirely disregard the feelings of the people of the community who had produced the substantial profits.

The effect of the discontinuance would be an inferior type of service to such people. *Re Union P. R. Co. Case No. 5004, August 8, 1961.*



Commodity Purchase Contract Sustained and Rate Reduction Order Reversed

THE Kentucky court of appeals ruled that the commission was without power to reduce the contract price for water paid by Kentucky Water Service Company to a supplier, Fern Lake Company. A lower court decision which had affirmed the commission order and further reduced the purchase price was reversed by the appeals court.

The matter arose upon application by Water Service for an increase in rates. The city of Middlesboro, the municipality it serves, protested the increase and brought in Fern Lake as a party. While the commission denied a proposed increase of \$13,000, it indirectly allowed the company an increase of \$4,700 a year by way of permitting the company to retain the benefit of a reduction of \$4,700 which the commission ordered in the contract supply rate with Fern Lake. A further reduction of \$9,000 in the supply cost ordered by the trial court was directed by that tribunal to be passed along to consumers.

The water purchase contract was a part of the consideration given by Water Service to Fern Lake's assignor in a property sale agreement and was approved long ago by the commission. Though the agree-

ment has been completely executed, the commission here sought to rescind its prior approval of the water purchase contract and order a reduction in the supply price. This it may not do, said the court, where, as in this case, the public interest can be adequately protected by proper regulation of the distributing company's rates. Such a valid, executed contract may be impaired by the state only if in the legitimate exercise of the police power it is essential to do so in order to protect the public health, safety, or welfare.

Rate Base Write-down Disapproved

Another question raised on appeal pertained to the commission's original cost determination. On the basis of a joint commission and company staff study, the commission in 1958 fixed the original cost of Water Service's properties at \$553,877. The valuation was established under free market conditions on properties which are still in use as public service facilities, which have to be maintained as a part of the utility operation, and which must be replaced when they wear out or become obsolete. By the commission's order \$149,717 of original cost, still in the system and still used in the public service, was

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taken away from the company for rate-making purposes. The commission had decided on the rate base reduction because the predecessor of Water Service had recorded a similarly reduced figure in its books as the cost to the company of the water system.

The reason for the write-down was not satisfactorily shown. The court noted that the reduced amount had no relation to the original cost of the property. What a pub-

lic utility artificially enters on its books as "cost to company," said the court, is plainly not, as a matter of law, a proper basis for rate making. The court thought the commission's error analogous in principle to the error of eliminating property from original cost on the ground that such property represents a PWA grant (24 PUR3d 290). *Fern Lake Co. et al. v Kentucky Pub. Service Commission et al.* June 23, 1961.



Low Pay-out Ratio Allows for Risk

IN determining the cost of equity capital to a small gas company serving one community only, the Montana commission allowed a pay-out ratio of 65 per cent—a somewhat lower ratio than would normally be allowed for larger utilities. The commission recognized "the greater risk inherent in this type of investment." It took into account an equity ratio of 36 per cent and found an earnings requirement of 9 per cent for equity capital. Using this figure and a debt cost of 4½ per cent, the commission arrived at an allowable rate of return of 6.15 per cent. Rates were ordered to be filed accordingly.

Evidence was offered to show an original cost depreciated valuation of \$302,000, trended original cost depreci-

ated of \$335,000, and reproduction cost new depreciated of \$589,000. The commission disagreed with the method used in determining depreciation for the reproduction cost new valuation. If methods other than observed depreciation are used, they must be used over the length of time the plant has been devoted to public service, it was pointed out. This is also true of the original cost depreciation if it is to be used in conjunction with reproduction cost new valuations.

The commission arrived at a rate base of \$467,000, including an allowance for working capital and materials and supplies. Tax accruals were considered in determining the working capital allowance. *Re Cut Bank Gas Co. Docket No. 5010, Order No. 2880, September 25, 1961.*



Accounting Order Upheld

IN a per curiam decision, a federal appeals court upheld a District of Columbia commission order (30 PUR3d 405) prescribing the accounting disposition which D. C. Transit System, Inc., must make with respect to the proceeds from the sale of utility properties. The commission has broad discretion in regulating the accounting procedure of utility companies.

The court's function in reviewing commission orders, it was noted, is limited to questions of law, including constitutional question.

Where the commission's findings of fact are not unreasonable, arbitrary, or capricious, as in this case, they are conclusive. *D. C. Transit System, Inc. v District of Columbia Pub. Utilities Commission*, 292 F2d 734.

Ratable Purchases from Natural Gas Wells Upheld

THE Kansas supreme court held that a state commission order requiring a purchaser of natural gas to take ratably from all wells to which he is connected neither affected interstate commerce nor invaded the jurisdiction of the Federal Power Commission. The court denied a petition by Northern Natural Gas Company, the purchaser, for rehearing and affirmed a lower court judgment upholding the administrative order.

This case, said the supreme court, in no way involves the price of gas, as did a

number of cases cited by Northern. Nor did the ratable taking order seek to regulate the total amount of gas which Northern may take. Northern agreed that the state may control the ratable production of natural gas, but this cannot be accomplished unless the taker will take gas ratably. The only matter here involved was whether the purchaser must take ratably and thereby preserve the rights of the landowners. *Northern Nat. Gas Co. v Kansas State Corp. Commission*, 364 P2d 668.



License to Handle Radioactive Waste Upheld

A FEDERAL appeals court held that radioactive waste material is a by-product, within the meaning of the Atomic Energy Act of 1954 authorizing the Atomic Energy Commission to issue licenses to handle by-products. To exclude waste material from the by-product classification, as urged by the appellant, Harris county, Texas, would be to take too narrow a view of the term, said the court.

In answer to a contention that the place selected for the handling of the waste material was not an appropriate one, the court made it clear that the statute leaves the determination of this matter to the commission. Unless the record is completely bare of supporting evidence, which

was not the case here, the grant of the license must be sustained. The commission disagreed with a contention that the appeal should be dismissed as moot on the ground that the licensee had moved its location from the place designated in the commission's order and thereby rendered the order ineffective.

The court indicated that if and when the licensee decides to accept the license at the place named, the order will be affirmed. In the alternative, if the licensee determines to seek a location elsewhere, the appellant may, when the commission has acted on the new application, bring an appeal from the order then entered. *Harris County, Texas v United States et al.* 292 F2d 370.



Temporary Certificates Require Notice and Hearing

IN its Statement of General Policy No. 62-1, the Federal Power Commission declared a new policy with respect to the proviso of § 7(c) of the Natural Gas Act authorizing the issuance of temporary certificates without notice or hearing. It was noted that this proviso has been "rather

broadly" interpreted on occasion in the past. In the future, however, hearing and notice will be required unless an emergency exists and the proposed enlargement or extension of facilities is comparatively minor. The vital distinction, from a procedural standpoint, between

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the provision relating to the grant of permanent authority and that pertaining to the issuance of a temporary certificate is that the latter may be accorded without notice or hearing, it was observed by the FPC.

The commission amended Part 2, Subchapter A, General Rules, Chapter 1 of Title 18 of the Code of Federal Regulations, by adding a new section, § 2.57. It provides, briefly, that the commission will exercise its emergency powers under the

§ 7(c) proviso to issue temporary certificates only for comparatively minor enlargements or extensions of an existing pipeline system. Major construction will require notice and hearing. The commission urged pipeline companies to submit applications early enough to permit compliance with the requirements for permanent certificates, so as not to cause undue delay in the commencement of construction. *Statement of General Policy No. 62-1 (18 CFR 2.57), October 19, 1961.*



Only One Effective Rate

IN denying rehearing of an order which refused to permit a natural gas producer to defer collection of a rate increase made effective subject to refund pending final determination, the Federal Power Commission again observed that a producer has no right to charge a rate different from the currently effective rate for a particular sale covered by a specific rate schedule.

There may be but one rate or charge

in effect at one time for a particular sale or service.

Commissioner Kuykendall, dissenting, indicated that he would grant rehearing. The applicant, he declared, is only attempting to do what he clearly has a right to do under authority of *Associated Oil & Gas Co. v Federal Power Commission* (1960) 280 F2d 31, 35 PUR3d 73. *Re Prentice (Operator) et al. Docket No. G-19475, September 18, 1961.*



Remand Proceeding Results in Adjustments in Income Tax Allowance and Rate of Return

FOLLOWING reversal and remand of an original order (36 PUR3d 60) denying a rate increase for Southern Union Gas Company, the New Mexico commission held further hearings and, taking account of specific requirements of the remand order, allowed the company to increase rates in New Mexico sufficiently to afford a rate of return of 6.21 per cent on a rate base of \$53 million. Gas plant leased to others was included as property used and useful in providing gas service. Rates put into effect in 1959 subject to refund must be refunded to the extent that they exceed the newly authorized level.

Capital Cost and Rate of Return

In its original order, the commission found that the company was earning a rate of return of 6.75 per cent. The company argued that this rate was therefore fixed and should not be disturbed in this proceeding. The staff, on the other hand, contended that the previously found rate was so inextricably bound up with the income tax treatment that when the reviewing court set aside the order on the ground that the income tax allowance was improperly determined, it effectively threw out the 6.75 per cent rate of return. The commission agreed with the staff.

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In determining capital cost, the company's witness took the various segments of the capital structure and added an increment to each one to reflect the present market for each type of security in the capital structure. He recommended a return of 12.5 per cent on common stock. Although his calculations resulted in an overall rate of return of 7.96 per cent, he recommended only 7.5 per cent. The company further reduced this figure to 6.75 per cent.

The commission noted that this current cost-of-capital theory seemed to presuppose, without supporting evidence, that the company would be required to refinance its entire capitalization within a comparatively short period in the near future. Under this theory, in a period of declining interest rates, the commission would be required to allow less than actual cost of capital, which would be confiscatory. The staff recommended actual cost of capital and an allowance of 10.5 per cent return on equity capital.

The commission concluded simply that a return of 6.21 per cent would balance the interests of the public, the company, and the ratepayers. It was noted, paren-

thetically, that this rate of return on the fair value rate base would amount to 7.6 per cent on depreciated original cost.

Income Taxes and Working Capital

The reviewing court held that the commission had improperly determined income taxes to be allowed. In compliance with the mandate of the court, the commission here treated the company's New Mexico operations as a separate entity, and in doing so greatly increased the income tax allowance. Income tax deductions were allocated on the basis of New Mexico property to total company capitalization.

Since income tax accruals, together with customers' advances in aid of construction, would provide working cash appreciably in excess of the company's claim for cash working capital, no further allowance was made for working capital. The ratepayers should not be required twice to provide for this requirement. However, an allowance of slightly more than one million dollars was made for materials and supplies. *Re Southern Union Gas Co. Case No. 541, October 13, 1961.*



Injunction against Community Antenna Television Service Denied

THE U. S. district court denied injunctive relief to a television station which claimed that a community antenna television service had been engaging in unfair competition and had been unjustly enriched thereby.

The court held, however, that the community antenna service could justifiably receive and transmit television signals through coaxial cables to its customers by means of a direct attachment to the customer's television set. It could do so

without obtaining permission from the television stations involved.

The antenna service was held to be simply a more expensive and elaborate application of the antenna principle needed for all television reception and not otherwise different from what the owners of the sets could do for themselves. Because of this, there was no unfair competition or unjust enrichment. *Intermountain Broadcasting & Television Corp. et al. v Idaho Microwave, Inc. et al. 196 F Supp 315.*

Other Recent Rulings

Invalid Tariff. The U. S. district court held that the ICC had justifiably canceled a railroad tariff listing a point on another railroad's route, since a railroad, without the concurrence of other carriers, is only permitted to file rate schedules between points on its own route. *Chicago & N. W. R. Co. v United States et al.* 195 F Supp 708.

Mileage Rates in Contract. The U. S. court of claims held that an airline was within its rights in expecting to be paid for shipments based on the distances outlined in a contract, commenting that, although a tariff, the primary measure of a rate, may not be altered or changed by extraneous incorporations, it may, in the absence of law or regulation to the contrary, be completed by references to guides or standards which are outside the tariff. *Slick Airways, Inc. v United States*, 292 F2d 515.

Rule Making. The CAB's action in authorizing supplemental air carriers serving military bases to apply for individual exemption from restrictions, where such carriers had previously enjoyed a blanket exemption, was held to be within the rule-making powers of the commission, eliminating the necessity for a hearing. *Capitol Airways, Inc. v Civil Aeronautics Board*, 292 F2d 755.

Power to Subpoena. The Iowa supreme court held that the commission has power to investigate operations of carriers and authority to issue subpoenas duces tecum requiring carriers to produce for inspection records and papers covering a reasonable period. *Iowa State Commerce Commission v Arrow Express Forwarding Co.* 110 NW2d 390.

Grandfather Rights. The Illinois appellate court held that a trucker operating under a grandfather certificate, in accordance with applicable statutes, is authorized to render only the type of service he rendered prior to the cutoff date. *Farm to Market Truckers Asso., Inc. et al. v Perrine et al.* 176 NE2d 625.

Predecessor Operations Considered. The Maryland court of appeals held that the operations of a predecessor in interest may be considered those of the applicant for the purpose of qualifying under a "grandfather clause." *Germenko et al. v Maryland Pub. Service Commission et al.* 173 A2d 362.

Ministerial Error. The Minnesota supreme court held that a mistake or oversight in the performance of a ministerial act by a commission employee with relation to a motor carrier tariff does not have the effect of enlarging that carrier's rights. *Murphy Motor Freight Lines, Inc. v Witte Transp. Co.* 110 NW2d 296.

Repeal by Implication. The Washington supreme court commented that an earlier special statute must yield to a later general statute where there is a manifest legislative intent that the general statute shall have universal application. *Herrett Trucking Co., Inc. et al. v Washington Pub. Service Commission et al.* 364 P2d 505.

Post Test-year Refunds. The California commission held that it is improper to include in the estimated rate base the estimated refunds on advances for construction for years subsequent to the test year, either in whole or in part, particularly if revenues and expenses are

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not projected beyond such test year. *Re Southern California Water Co. Decision No. 62641, Application No. 42778, October 3, 1961.*

Labor Costs Offset. The Massachusetts commission granted a motor common carrier a rate increase upon a showing that additional revenues were necessary to offset increased labor costs. *Re Massachusetts Northeastern Transp. Co. DPU 13677, October 11, 1961.*

Rehearing Not Required. The U. S. court of appeals held that it is within the discretion of the administrative body to decide not to hold additional hearings upon immediate refilings of applications which had been heard before, dismissed, then reviewed and affirmed by the court. *Great Lakes Airlines, Inc. et al. v Civil Aeronautics Board, 293 F2d 153.*

Other Profitable Interests. The Connecticut commission held that the fact that the owner of a bus franchise had profitable nontransportation interests was not legal justification to require operation of motorbus service at a loss, since to do so would violate basic constitutional rights. *Re Connecticut R. & Lighting Co. Docket No. 10032, September 19, 1961.*

Extension of Telephone Service Denied. The Missouri commission refused to require a telephone company to extend its service area to serve residents merely because such residents preferred service from that company, where there were other companies in a better position to serve the area and such companies were willing to serve with adequate, modern dial service. *Odneal et al. v Southwestern Bell Teleph. Co. Case No. 14,670, September 28, 1961.*

Carrier Authority Construed. The South Dakota commission held that transportation authority "to and from" any point authorized to be served must be construed in the conjunctive sense, rather than the disjunctive, and cannot be construed to authorize service from any authorized point to all points in the state or from all points in the state to points on the authorized route. *Re Pexa, 7862-A, October 10, 1961.*

ICC Jurisdiction. The U. S. court of appeals held that the question of whether a motor freight shipment should have been routed over an interstate route or an intrastate route by a carrier possessing dual authorities, where the interstate rate was higher, was an administrative question to be decided by the ICC, not by the courts. *Hewitt-Robins, Inc. v Eastern Freight-Ways, Inc. 293 F2d 205.*

Co-operative Is Contract Carrier. A federal district court ruled that a shippers' co-operative which leased trucks and performed nonprofit interstate transportation service for its members was a contract carrier within the meaning of the Interstate Commerce Act requiring such a carrier to be certificated. *Interstate Commerce Commission v Shippers Co-op, Inc. et al. 196 F Supp 8.*

Merger Disapproved. The U. S. district court upheld the ICC's denial of an application for approval of a merger of two common carriers where the evidence clearly showed that the owner of one company held stock in the other and that approval would have formalized and strengthened a relationship partly achieved by unlawful conduct. *Gilbertville Trucking Co., Inc. et al. v United States et al. 196 F2d 351.*

Industrial Progress



Lake Power Makes Long Range Plans for Power Supply

ANOTHER step in Duke Power Company's long-range planning for continuing abundant supply of electric power in the Piedmont Carolinas was made public recently.

W. B. McGuire, president, said Plant Marshall, a steam-electric generating station which will open with two generating units of 350,000 kwatt-capacity each, will be built at a site located on Lake Norman. Lake Norman, to be filled by 1963, will be the 33,000-acre lake behind Evans Ford Dam now nearing completion about 16 miles northwest of Charlotte.

Plant Marshall will be located in Catawba county on the west side of Lake Norman about one mile from Highway 150 bridge across the Catawba. Construction is slated to begin August 1, 1962 and the first unit is scheduled for operation March 1965. The second unit is expected to go on the line about a year later. Cost of the two units is expected to be \$90 million.

The plant will bear the distinguished name of the late Edward Harrington Marshall, long-time associate of James B. Duke and Duke Power president from 1949 until his death in 1953.

Plant Marshall will be the third major steam plant Duke has constructed on the Catawba River. The other two are Riverbend near Mount Holly and Allen near Belmont. The new plant will be tied into Duke's other plants and distribution system by high-tension transmission lines of 200,000 and 230,000 volts.

Previously announced by Duke Power is one of the South's major steam electric generating plants to be located on the Savannah River in Anderson County, S. C. The first unit of this plant is scheduled for operation July 1, 1967.

Duke Power serves a 20,000-

square-mile area with seven steam and 31 hydro-electric plants. Total system capacity is 3,602,163 kw.

Potomac Edison Company Orders LL-65 C Distribution Transformers from Westinghouse

A LARGE order for low-loss 65-degree distribution transformers (LL-65) rated 5, 10, 15 and 25 kva have been ordered from the Westinghouse Electric Corporation by the Potomac Edison Company, Hagerstown, Md.

These new low-loss 65-degree transformers offer reduced operating costs brought about by the reduction of their copper-to-iron loss ratio from 3:1 to 2.5:1. This will protect the electric utility having a low-load factor or low average annual load on the transformer. It will reduce the limitation on regulation, because the reduction in load loss permits a reduction in impedance of about 15 per cent over existing 55-degree designs.

Other features of the LL-65 include: reduction in utility investment; lower no-load loss; higher signal light setting; delayed changeout; and lower load loss at any operating load.

Strohmeyer Honored By A.S.M.E.

CHARLES Strohmeyer, Jr., senior mechanical engineer at Gilbert Associates, Inc. of Reading, Pa. received the 1961 Prime Movers Committee Award at a recent Power Conference of the American Society of Mechanical Engineers.

Strohmeyer was honored for his development of outstanding new concepts in the field of electric generating plant design presented previously to the A.S.M.E. in a paper entitled, "Transient Loading Improvements for Large Steam Generating Units."

These new concepts form the design basis for a new 325,000 kw

generating plant of the Kansai Electric Power Company, a current Gilbert activity, of which Mr. Strohmeyer is project engineer. The work is being performed under contract to Westinghouse Electric International, prime contractor to the Japanese Utility.

The nature of the Japanese generating capability, of which hydro-electric plants represent a major segment, requires steam electric power plants which will operate with high efficiency and flexibility. Mr. Strohmeyer's approach to the problems of the transient loading of steam plants will provide the Japanese with a large plant capable of maintaining high efficiency while operating at less than full rating. The new design will also enable rapid start-up and shut-down of the plant providing additional flexibility in system operations.

Pennsylvania Pwr. & Lt. Installs First IBM Optical Scanner

THE Pennsylvania Power & Light Company recently completed installation of the first machine to read conventional printed or typed information directly into a computer.

The new machine—an IBM 1418 optical character reader—will be used initially for automatic entry of meter reading and customer payment information.

(Continued on page 20)

SENIOR SYSTEMS ANALYST

Large national consulting organization requires a man with wide experience at the decision making level in:

- Selecting punch card and computer equipment;
- Estimating installation & operating costs;
- Designing complete record keeping procedures;
- Programming;
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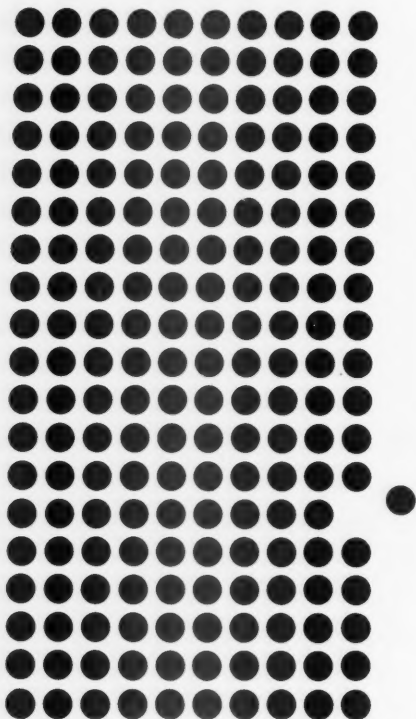
- Installing equipment;
- Converting & directing actual operation of punch card and computer installations, producing satisfactory results;

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INDUSTRIAL PROGRESS—(Continued)

mation into a computer for high-speed processing. Information read by the machine will be processed by PP&L's new ultra-modern computer center, which consists of a large-scale IBM 7070 system and smaller IBM 1401 computers.

The center will maintain comprehensive records and perform the billing and accounting functions for the company's more than 730,000 customers—almost 60 per cent of the population of Pennsylvania—who use electricity for residential, commercial, industrial and other purposes.

B&W to Recommend Universal Pressure Boiler For High Pressure Electric Utility Applications

THE Universal Pressure once-through type boiler system will be recommended for all electric utility boiler applications requiring turbine throttle pressures of 2000 psi and higher, Babcock & Wilcox Vice President S. T. Mackenzie announced recently.

Establishment of such a policy is unique in the boiler industry because it literally endorses a single boiler design concept for application to electric power plants requiring steam pressure above the 2000 psi level of the turbine throttle.

The high temperature, high pressure boiler system developed by B&W has proved to be the most economical for these service conditions, Mr. Mackenzie claimed. In the past four years, 16 of the new units have been installed or ordered for utility plants which represent a total industry investment of almost \$1 billion dollars and a generating capacity of over 6,450,000 kilowatts.

Operating results obtained with six units currently in service have proven four primary advantages of the Universal Pressure system. These include lower first construction costs, increased plant economy and availability and lower maintenance costs, Mr. Mackenzie said.

Mr. Mackenzie pointed out that B&W will continue to offer drum-type boilers for 2000 psi service or above to meet special customer requirements.

Georgia Power Plans Study of Flint River for Hydroelectric Development

THE Georgia Power Company has applied to the Federal Power Commission for a preliminary permit to study the feasibility of hydroelectric power development of the Flint river, John J. McDonough, company president, announced recently.

The proposed study will center about the Flint river areas of Crawford, Taylor, Upson, Talbot, Pike, and Meriwether counties. The study area comprises a 4-mile stretch of river.

Because of the meager data now available on the river, the company will request enough time to make an intensive study of the section. Such work will include surveys and geological investigations as well as river flow studies, and the results will determine the actual feasibility of the project.

Georgia Power Company engineers stated that the firm serves its customers efficiently and economically through a co-ordinated steam-electric and hydroelectric generating system. They estimate that approximately 300,000 kilowatts of generating capacity could be installed on the specified reach of the Flint river. This additional capacity would nearly double the com-

ny's present hydroelectric production and the engineers said the new hydroelectric output is needed to balance the utility's fast-growing steam-electric generation. The company's electric power generated at its plants principally to meet peak-hour demands of its customers, while its steam-electric generating stations, not dependent upon water reservoirs, can operate around the clock.

Mr. McDonough said that many years ago the company, realizing the great potential of the Flint river, purchased several sites along the stream with prospects for hydroelectric development. Other sites, as well as the large acreage owned by the company, would be studied for feasibility of development.

Boston Edison Retains Stone & Webster

BOSTON Edison Company has retained Stone & Webster Engineering Corporation as consultants for design and construction of a 340,000-horsepower generating unit at its L street station in South Boston.

Charles F. Avila, president of Bos-

ton Edison, said construction will start in 1962. The new unit is scheduled for commercial operation July 1, 1965. The New England Electric System and the New England Gas & Electric Association will purchase part of the new capacity under commercial term contracts, Mr. Avila said.

Westinghouse Electric Corporation will build the turbine generator. The boiler for the new unit will produce 2,250,000 pounds of steam per hour at 2,400 psi, 1,000/1,000 Fahrenheit.

American Meter Issues Bulletins On Ironcase and Aluminumcase Meters

FOUR new bulletins on American Ironcase and Aluminumcase Meters have been published by American Meter Company.

Bulletin 309 describes 5B and 10B Ironcase Meters; Bulletin 311 the 20B, 30B and 60B Ironcase Meters; Bulletin 312 the 80B, 250B and 500B Ironcase Meters; and Bulletin 320 the complete American line of Ironcase Meters. Bulletins 312 and 320 also list several models of Aluminum-

case Meters. All bulletins give complete specifications including maximum working pressures, capacities, type and size of connections, shipping weights and dimensions.

Copies of these new bulletins are available by writing to Advertising Department, American Meter Company, 920 Payne avenue, Erie 6, Pa.

Fly-Ash Collecting Equipment Reviewed in New Brochure

THREE major types of equipment for modern high efficiency fly-ash collection are reviewed in a new four-page illustrated brochure published by Research-Cottrell, Inc., manufacturer of industrial gas cleaning equipment.

Based on records of more than 600 fly-ash installations in the U. S. and around the world, rated to clean more than 139,000,000 cubic feet of gas per minute, the informative brochure discusses application and performance characteristics of electrical precipitators, mechanical collectors, and combination electrical-mechanical collectors. Recent installa-

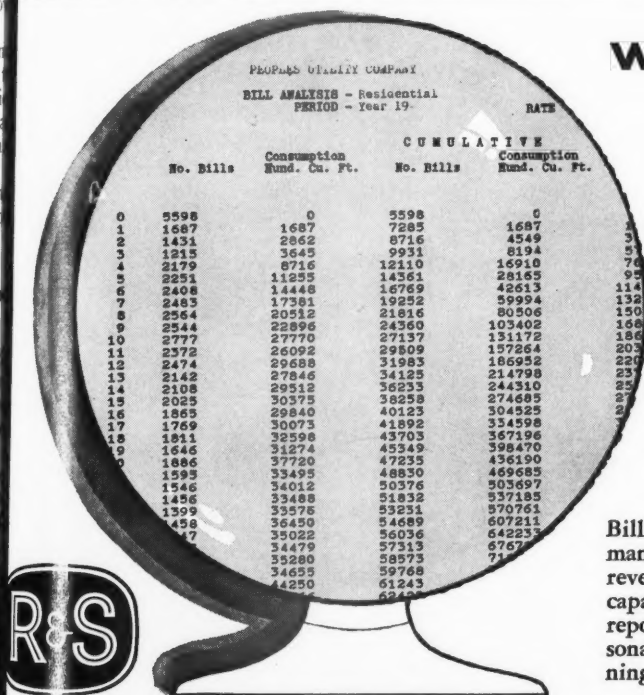
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INDUSTRIAL PROGRESS—(Continued)

tions in typical large, modern central power stations are illustrated and described.

Copies of the brochure, entitled "Gas Cleaning Equipment For Fly-Ash Applications," may be obtained by writing to Research-Cottrell, Inc., Bound Brook, New Jersey.

G&W Electric Specialty Appointment

THE appointment of C. E. Bitzer to the position of vice president, Marketing for G&W Electric Specialty Company was announced recently by N. O. Kirkby, vice president and general manager. Mr. Bitzer will be responsible for expanding and co-ordinating the marketing, sales, and advertising functions to meet the increasing demands for G&W power cable accessory and switchgear products in the rapidly growing utility and industrial markets.

Mr. Bitzer has wide experience in marketing and merchandising electrical products, primarily in the utility field. He comes to G&W from Anderson Electric Corporation where he rose in four years from distributor division sales manager to vice president, sales. Previously, he was associated with the domestic and international divisions of Westinghouse Electric Corporation in merchandising positions.

Flynn Designs Towers With Help Of Computer to Eliminate Human Error Element

MICHAEL FLYNN Manufacturing Co., Philadelphia, Pa., is now designing its aluminum guyed V power transmission towers with the help of a computer. The company believes that it is the first to use a computer for this purpose.

C. C. Armstrong, product manager of Flynn's transmission tower division, in explaining the use of the computer, said, "In any tower design there are several thousand possible solutions. We let our computer review each of these solutions to find the most efficient and economical design."

Installation of Transite Conduit Described in New J-M Folder

A NEW Johns-Manville folder, TR-311A, contains illustrated step-by-step instructions for installing Transite Conduit. It also includes information on trenching, cutting and joining duct, placing, and backfilling conduit without concrete encasement. For install-

ing Conduits in concrete, both built-up or monolithic method, the tier-by-tier method are described.

Copies of the folder are available from Johns-Manville Pipe Division, 22 East 40th street, New York, New York.

Production Is Started On Honeywell 400 Computer

MINNEAPOLIS—Honeywell's Electronic Data Processing division announces that it has started volume production of its Honeywell 400 medium-scale computer and is substantially expanding output of its Honeywell 290 industrial process control system.


Walter W. Finke, president of EDP division, said that output of Honeywell 800, started last year continuing on a volume basis. He planned that 18 Honeywell 800's, with a sales value of about \$23 million were delivered during the first months of the year.

The sales value of computer systems to be delivered by the division in the last half of the year will be approximately \$28 million, he said.

Installing Two Gas Turbine

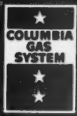
DELAWARE Power & Light Company plans to proceed with the installation of two gas turbine generating units at an estimated cost of \$2,250,000 it was announced recently by A. T. Gardner, president. One of the units, a General Electric with an electric generating capacity of 11,700 kilowatts, will be installed next to the company's south Madison street substation. The other unit, a Pratt-Whitney having an electric generating capacity of 12,900 kilowatts, is presently scheduled for installation at the Edge Moor power station and will utilize a jet engine identical with the jet engines on modern airplanes.

Mr. Gardner pointed out that use of an aircraft jet engine in conjunction with a gas turbine for generating electric power is an innovation and Delaware Power & Light Company is among the first to utilize the reliable engine for this purpose. Both units are scheduled to be ready for operation by November 1, 1962 and will be used only for relatively short periods of peak demands for electric power. Push-button operated and remotely controlled, these gas turbines can be placed in operation in a few minutes when unusually large demands for electric power occur. Both units will be fueled by natural gas.



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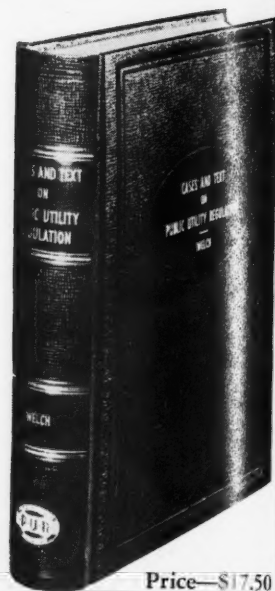
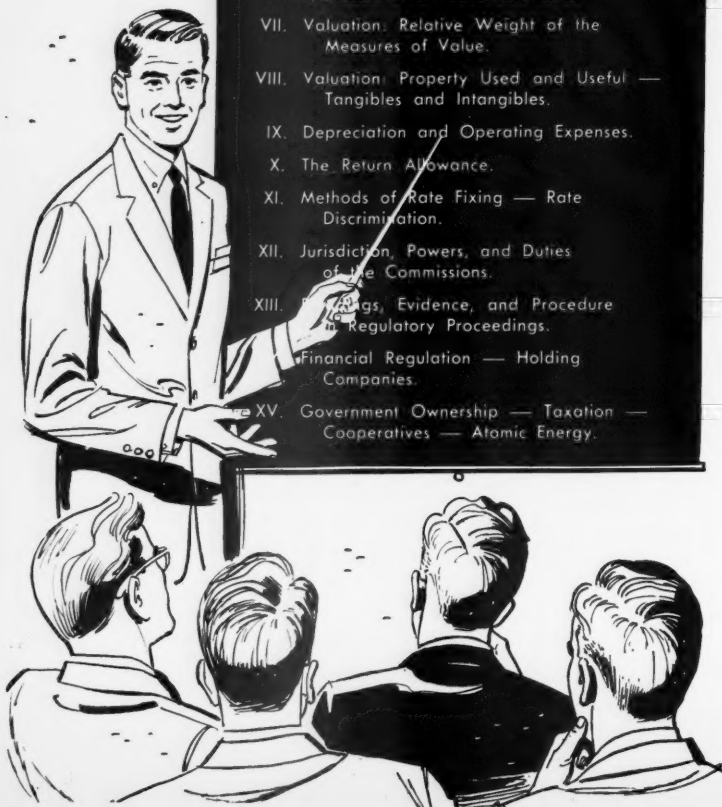
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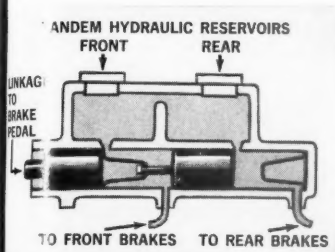
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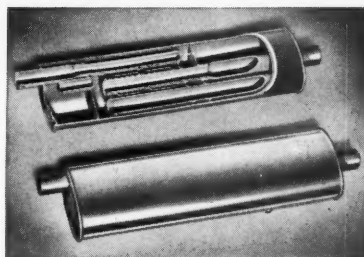
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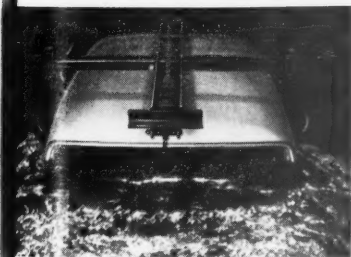
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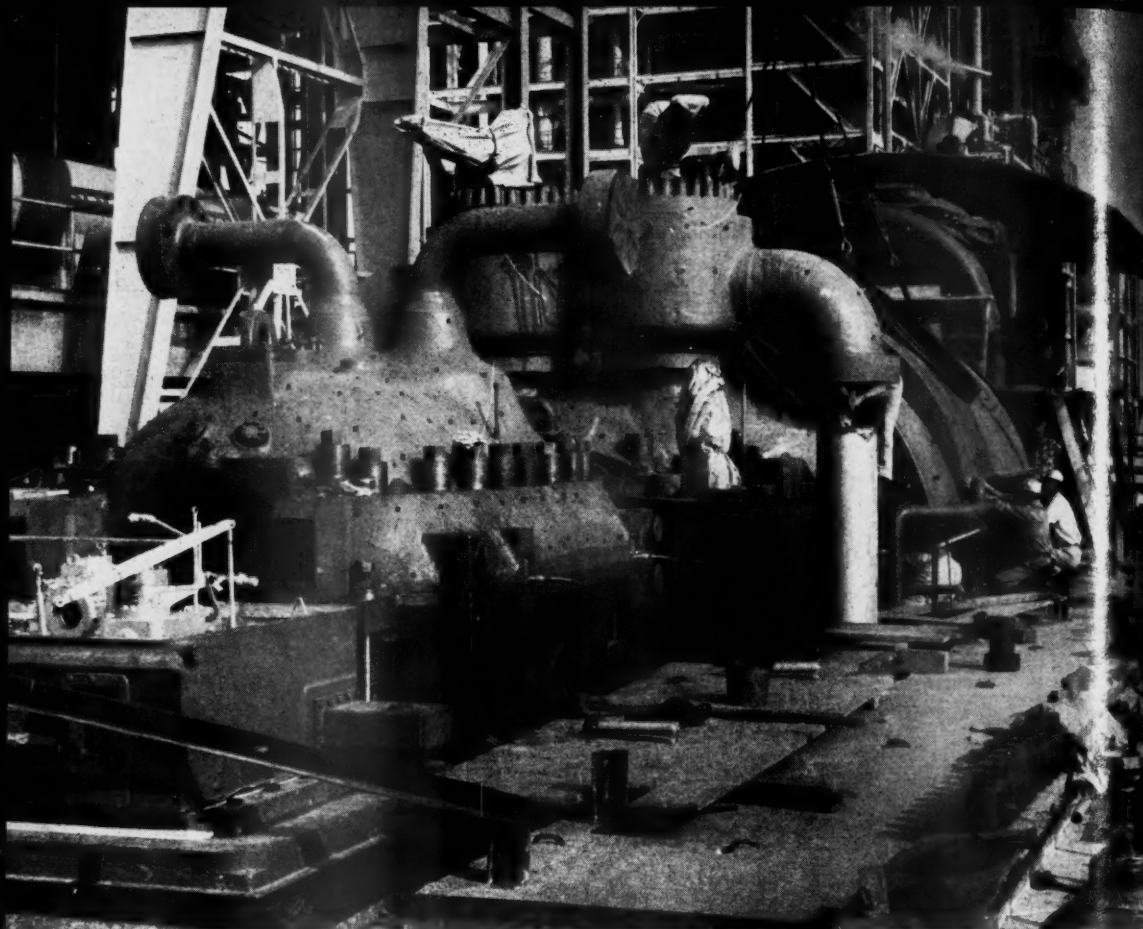
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When you specify a General Electric turbine-generator you get a unit pre-engineered for economical, on time installation—and you get personalized service for as long as that unit is on-the-line.

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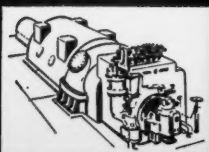
Progress Is Our Most Important Product

GENERAL  ELECTRIC

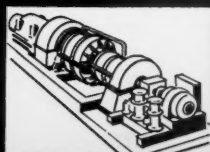
**General Electric
Turbine-Generators
Help Keep
Power Costs Low**



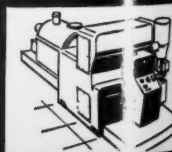
Steam turbine-generators
for large blocks of power



Steam turbine-generators
100,000 kw and lower



Gas turbines for peaking,
base load, combined cycles



Mechanical drive steam
turbines for peaking